The Builder.

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ART, said the King of Bavaria, as we reported last week, art must not be regarded as a *luxury:* it must be seen and felt every where; when it enters into the life of the people, and is their animating spirit, then will it take its proper place. My great artists are my joy and my pride. Long after the works of the statesman are forgotten, those of the real artist will remain, to give joy and elevate man.

We have so often urged these same sentiments, in nearly the same words, and so uniformly advocated all measures tending to produce the important results aimed at, that no expression of concurrence on our parts can be necessary. Again and again, however, will we repeat them, and in good time the seed will produce fruit.

Art must go lower than it now does,—must permeate the mass of the people,—good art must be made cheap; and the profession of artists must be made honourable. "Unless the public at large sympathise in art, and feel it to be an enjoyment, we shall never attain any thing national in art, or have a public to appeal to." Let the affection for art become great, and education in it will speedily follow. Causes are in operation to produce this. A spirit has been evoked which will not soon be laid again; a taste for art, and love of the beautiful are arising, and the national happiness and the national welfare will be greatly, nay, immeasurably advanced. Art as a joy-giver,—art as a great teacher, must be fostered, developed, and honoured.

> "There is in every human heart
> Some not completely barren part,
> Where seeds of truth and love might grow,
> And flowers of generous virtue blow;
> To plant, to watch, to water there,
> This be our duty, this our care."

Some remarks on decorative art, the great ignorance that exists on the subject of art, and the want of artistical operatives, which we made at the beginning of the month, have been quoted throughout the length and the breadth of the kingdom. We have seen them in not less than thirty or forty different shapes and channels,—a striking evidence as it appears to us of the growing interest taken in the subject.

The ignorance which still prevails in matters of art, is indeed as we then said, astounding, and dearly have we paid for it. The most recent evidence of the want of knowledge in England of just principles of art, and proper standards of taste in the mind, is the unlucky statue that o'er-rides the arch.

Every day the absurdity of the conjunction becomes more evident and striking; every succeeding examination shews more forcibly the truth of our often repeated prediction and assertions,—the statue destroys the arch and the arch destroys the statue; like the two Kilkenny cats, they eat up one another, leaving nothing but the tale behind,—and a sad, sad, tale it is. Yet notwithstanding this, journals of high character can be found to praise the monstrous mistake (made through want of consideration, and persisted in through pride), and to lend their aid to make the disgrace permanent. We would fain think that they still, in their heart, hope they may be unsuccessful.

That the statue will remain, great as the difficulty of effecting its removal may be, is scarcely to be believed. A circular has been addressed by Lord Morpeth to the Royal Academicians, to obtain their opinions on the subject, and, we must suppose, that when obtained, some attention will be paid to them. We trust every artist appealed to will look at the question without reference to individuals, and consider that the artistical reputation of the country is in some degree in his hands.

Apart from the overpowering weight of objections urged, there is one glaring incongruity which has not yet been pointed out,—we mean the want of accordance in character. If we were to erect a Corinthian altar-piece in a gothic church, or put crocketted pinnacles on an Italian campanile, or if we were to place on the head of a statue purporting to be of the Greek period, a helmet belonging to that of the Roman, the incongruity would at once be pointed out, and scouted. Yet in the case before us, on the representation of a strictly and peculiarly Roman monument, a figure in the costume of the 19th century is to be permitted! In the glare of the other even more apparent objections, this, which of itself in ordinary circumstances would be fatal, has been overlooked.

A movement has at last been made at the Institute of Architects, to induce the council to consider the matter in question, and come to some resolution upon it. We trust the effort will be successful, and the *vis inertiæ* there be overcome.

EXPERIMENTS ON HYDRAULIC CEMENTS.

EXPERIMENTS on the strength and durability of materials used in building are always interesting; but perhaps in no material more so than in the articles of lime, mortar, and cement, where the nature of the composition and the proportions differ so widely, and in regard to which the principles on which the excellence of the result depends, are by no means yet fully understood.

It is desirable that any experiments having a tendency to this result should be permanently placed on record for future reference and comparison with other efforts having the same tendency. With this view I transmit you a statement of certain experiments on two qualities of hydraulic cements, most carefully conducted.

The Liverpool (old) Gas Company are now erecting very extensive works at the south end of the town, a considerable part of the brickwork of which, consisting of tanks connected with the gasometers, is required to be watertight, and is subject to considerable hydrostatic pressure. The lime generally used in this neighbourhood for works of this nature is procured from Halkin, in Flintshire, but recently the blue lias lime, from Warwickshire, has been introduced, and very highly recommended. Mr. Alfred King, the talented engineer to the company, determined before proceeding, to institute a set of experiments on the relative qualities of the two articles, as applied in various proportions, and under circumstances of different character, and kindly invited a few professional friends to witness the testing of the specimens.

The mode of procedure was as follows:—each specimen consisted of a small pillar of brickwork, one brick square and three courses in height, placed upon a board so that it could be carefully removed without disturbing the joints. The composition of the cement was various: from pure lime up to one-fourth lime and three-fourths sand, the sand being tolerably pure and free from earthy particles, but rather fine and small in the grain. One series of the specimens were immersed in water immediately after being set, where they remained from the 23rd of September to the 22nd of October. Another portion were left to stand twenty-four hours, and then plunged into water, where they remained for the same period. A third portion were left dry without being immersed. The bricks were all well moistened previous to being set. When subjected to the test, each pillar was secured in a strong iron frame. Another frame was dropped over the upper course, and secured to it with screws. This frame was suspended from a lever, at the other extremity of which weights were applied, care being taken, by means of another screw, to keep the lever in all cases perfectly horizontal. The following are some of the most important results.

Specimens immersed in water immediately after being set:—

No. 1. Pure Lias lime. This required a weight of 1655 lbs. to tear it asunder, being a pressure of nearly 20 lbs. to the square inch. The cement extremely hard and solid.

No. 2. Pure Halkin lime. This came asunder with the slightest weight. The cement very soft.

No. 3 One part Lias lime to one part sand. Bore a weight of 825 lbs. before breaking asunder. The cement rather tender.

No. 4. One part Halkin lime to one part sand. Would not bear the slightest weight.

Specimens left twenty-four hours dry, and afterwards immersed in water for one month:—

No. 5. Pure Lias lime. Required 1510 lbs. to tear it asunder. In this case, however, it was not the joint which gave way, but the brick, of which a thin flake adhered to the upper course. Another specimen of the same composition broke with 1,385 lbs., but the adhesion of the cement to the bricks was not perfect.—The cement in these cases perfectly hard.

No. 6. Pure Halkin lime. Would not bear the test at all. The cement quite soft.

No. 7. One part Lias to one sand, broke with 245 lbs. Another specimen of the same composition bore 510 lbs.

No. 8. One part Halkin to one sand. Would not bear the test.

Specimens left dry for one month:—

No. 9. Pure Lias lime. Broke with 1,000 lbs.

No. 10. Pure Halkin ditto. Broke with 350 lbs.

No. 11. One part Lias to one sand. Broke with 645 lbs.

No. 12. One part Halkin to one sand. Would not bear the test.

No. 13. One part Lias to two sand. Broke with 545 lbs.

There was a considerable number of other specimens, but time would not permit us to go into them.

A few inferences may fairly be deduced from the above experiments.

The first is the evident superiority of the lias lime for hydraulic purposes, since it appears to set admirably under water, in which circumstances its greatest strength is evolved.

The second is, that to secure its advantages as a water-cement, it should be used pure, as it is seen that a mixture of equal parts with sand, reduces its strength one-half. When it is recollected, however, that in its pure state, its cost is not more than one-third to one-half that of Roman cement, this cannot be considered a very material objection.

The third inference is, that for purposes not hydraulic, the lias lime does not appear to possess any advantages over common stone lime. The strongest of the dry specimens was the pure lime, contrary to the usual result with ordinary limes, whilst, when mixed in the usual proportions of one part lime to two of sand, it does not seem to possess any peculiar tenacity. I shall be glad if any of your readers will furnish the results of their experience in relation to a subject so interesting and important. J. A. PICTON, Architect.

Liverpool, Oct. 22nd, 1846.

FIREWOOD.—In future, foreign deal batten and board ends are admissible as firewood, in lengths of twelve inches, if split into two nearly equal pieces, instead of into three or four pieces, as hitherto required; and in lengths of eighteen inches if split into three pieces, instead of into *four*, as hitherto required for deal and board ends, and into two instead of three pieces for batten ends, the previous regulations as to timber ends being still adhered to.

THE PRACTICE OF FRESCO PAINTING.

The following is the substance of the first lecture delivered by Mr. R. W. Buss, at the Western Literary Institution, already mentioned:—

The subject of fresco painting is one of national importance, as may be seen by referring to the treasures of art which still remain as monuments of the departed greatness of Greece, Rome, and Italy. Even the possession of a peculiar excellence in a particular branch of art, will enhance the importance of that particular state or nation so excelling. Such is the case with the modern German school of art, whose professors have taken the works of the early Italian masters as the basis of their practice, and stimulated by the munificence of their sovereign, have acquired for themselves in a few years a character for art which, according to some opinions, places Germany second only to Italy.

To the reflected greatness of the German school we principally owe the present great movement in art in this country, and to his Royal Highness Prince Albert, aided by members of the Royal Commission, eminent for their taste and judgment in art, we are mainly indebted for the great probability which exists, that in England before long, there will be a permanent school of fresco painting, equal at least to the boasted German school.

A most encouraging commencement has been made by the determination of the Royal Commission to adorn with pictures, the interior of our legislative palace at Westminster, which promises not only to be of benefit to the fine arts in this country, but to tend most materially to raise the moral and intellectual standard of the public, by presenting for their emulation, through the medium of the pencil, the acts of patriotism, or the heroic achievements of their illustrious countrymen.

The people at length have become alive to the charms of art, and have proved themselves worthy of the trust reposed in them, that of a free (or comparatively free) admission to our national depositories of the productions of art or of nature; which is sufficiently evinced by the Parliamentary returns made of the numbers of visitors to national exhibitions, and of the absence on the part of the public of any desire to do wilful damage.

The three exhibitions which have taken place at Westminster-hall, under the auspices of her Majesty's Commissioners, have completely set at rest those doubts entertained by our wonder-seeking countrymen, whether England was capable of producing works of art in the historic style—forgetting, as it would seem, that Hogarth, Reynolds, Barry, West, Hilton, Briggs, Haydon, Bacon, Blake, and Flaxman are natives of our United Kingdom, and had never been stimulated either by hopes or rewards on the part of the Government of this country.

This great question has, however, not been brought to so successful a result, without very considerable sacrifices on the part of the artists who have competed—for the cost in time and money expended could not have amounted to less than 18,000*l.* or 20,000*l.*; while in return the Royal Commissioners have only distributed 6,000*l.* in rewards, 4,000*l.* of which were received at the doors by the charge of one shilling for admission! However, the national character has been vindicated, and no reasonable doubt can be entertained, that the gentlemen selected to execute the frescos in the House of Lords will acquit themselves of their arduous task with honour, and supersede the necessity of importing either Italian, French, or German artists to shew us how *English* subjects should be painted.

It is much to be regretted, that while our native artists are thus making great efforts and rapid strides towards excellence, the second building in the metropolis (the Royal Exchange) should have been confided to a German artist to decorate; and in a similar unnational spirit has the commission for the statue of the Duke of Wellington at Glasgow been, by the Committee of Taste, given to Mons. Marochetti.

As the critiques written upon the works in fresco exhibited in Westminster Hall, and the remarks of the visitors generally (including a large portion of artists themselves), were characterised by a want of acquaintance with the capabilities of fresco, its peculiarities, and of the totally different process by which fresco pictures are produced from that of any works in oil or tempera painting, the lecturer stated, that he considered it would add much to the interest and to the clear understanding of the subject, if, in these two lectures on fresco, a slight picture (sufficient to shew the process), were to be painted. He then proceeded to explain the kind of frame-work which it was advisable to adopt for fresco pictures.

A brick wall is not desirable as the recipient of the plaster upon which a fresco is to be executed; as Messrs. C. H. Smith and Dyce are of opinion that the London bricks are highly charged with salts, which exude every time the wall is moistened or damped, and will effloresce upon the surface of the picture—an evil which has been encountered by some artists already. To prevent this, a hydrofuge of wax, resin, and oil, should be spread over the wall previously to laying the grounds for fresco, by which the damp would be intercepted. But the safer plan would be, to use battens and lath instead of the brickwork: this mode receives additional recommendation from the fact, that none of the experimental frescos painted upon such a framework, have shewn any of the defects which would result from salts or from damp.

Where great lightness, or removable frescos, are required, a frame of wood, with wire-work of either iron or copper, could be used, instead of the laths; and the Italians have a method of preparing coarse canvas, protected by laths at the back, which has a great advantage in this respect over the others. If a brick or stone wall be selected to paint upon, it will require to be thoroughly dry before laying the rough coat of plaster. This first layer is composed of river sand and lime, in the proportions of two parts of sand to one of lime, or three parts of sand to one of lime. A wall thus prepared, the old authors and the German artists maintain, should remain in this state, even for a space of two or three years, in order to harden and to ameliorate the causticity of the lime; but on this point our practical men in this country differ. They state, that if the wall be not in a *bad state*, the mortar will dry in the course of a week or two, and after that period the lime undergoes no other change. Also, with respect to the lime, that it need not be so old as required by Professor Cornelius, who, it is stated, kept the lime eight years before he commenced his works in the Ludwig Kirche.

Our plasterers are of opinion, that a few months are amply sufficient to extract the injurious tendencies of lime. The lecturer stated that he had used lime of various degrees of strength and age, and that the lime he had been furnished with by an experienced plasterer, and which had been slacked only a few months, proved quite satisfactory, as it neither blistered, became patchy, nor changed the colours. Upon the whole, therefore, it may be considered, that a greater stress has been laid upon the necessity of keeping the lime a very long time, than there is any real occasion for; and it is highly probable that many of the defects, failures, and mischances attending fresco works, are more attributable to the bad state of the walls than the excess of causticity in the lime.

The second coat should be composed of more lime, two parts or less of sand to one of lime; and when this has set, the *intonaco* may be laid. This is the third layer of plaster, upon which the picture is painted. Some artists substitute marble-dust for the sand, but it does not work so agreeably as the sand, and is to some eyes disagreeably white. It appears to have been the practice of the early Italian masters, to have drawn with charcoal the design upon the dry wall, and then to wash in the outlines with a brush and some ochre, and over these markings to have laid a very thin intonaco, so as to allow them to see the drawing through it, and on the portion of wet plaster to complete the painting.

The colours employed should be almost entirely of mineral origin, carefully selected, well ground, and kept in small pots with covers to them. Ultramarine is a difficult colour to manage, as it is apt to fall off the picture in the form of powder; to remedy this, the Italians usually painted this part in tempera over a ground of *black* or *red*, or a mixture of both. Lake is not available in fresco, and it is supposed that the boasted colour called hæmatite, and by several other names, was in reality no nearer to the quality of lake than Indian red, to judge also from some English specimens which have been procured. Whatever may be the age of the time, those colours which do not quickly change upon a trial slab may be used.

Having a well-dried rough coat of plaster upon a frame work with laths, clean washed river sand, and lime a few months old; distilled or rain water, brushes rather long in the hair, and colours of mineral origin, with a few metallic preparations, all of which have been tested; the grounds may be laid and the picture painted with little or no fears as to the results. In the application of the colours, it is important to remember that no depth beyond the dry state of the colour is available in pure fresco; that a tint compounded of lime dries gradually lighter by three or four degrees, and that a wash, i. e. colour diluted with water without any lime, dries a little lighter, while the ground under it dries three or four degrees lighter, the consequence of which is, that the tint when dry is annoyingly dark, quite out of keeping with the ground.

Of the cartoon sketches for colour, effect, &c., the care is much the same as that required for any work upon which the artist is willing to trust his reputation; every point must be decided before the picture should be commenced, avoiding dark subjects and those requiring transparency and depth, which belong more to oil painting than fresco.

The lecture proved very interesting to a large audience.

AWARDS OF OFFICIAL REFEREES.

DIVISION OF BUILDINGS.

Mr. Staley having converted one house in Sun-row, Islington, into two, "each having a separate entrance and staircase, and not being divided by a proper party-wall, in accordance with the rule headed 'Division of Buildings,' in schedule D, part III., of the said Act," the district surveyor gave him notice of irregularity, and finding the same not amended at the expiration of forty-eight hours, gave information of the same to the referees.

Their award was:—"That inasmuch as the building in question had been divided into two parts, and a separate entrance and staircase has been formed to each part, such building is to be deemed to be two separate houses,—and inasmuch as such houses are not divided the one from the other by a party structure, built in the manner and of the materials required by the Metropolitan Buildings Act, the same are contrary to the said Act, and ought to be altered or amended. And we do hereby direct the said James Staley forthwith to alter and amend the same in conformity with the provisions, rules, and directions of the last-mentioned Act."

PROJECTIONS.—BLINDS.

In the matter of the information of the district surveyor of St. James, Westminster, that Messrs. W. Cubitt and Co. had fixed a blind-box or case made of wood, to the front wall of a house in Regent-street, continuing throughout the greater part of the length of the front, over the one pair windows.

The referees awarded:—"That the work in question is contrary to the Metropolitan Buildings Act, and that any such projection as the one in question, being of wood and standing before the face of the wall, and not within the reveals of the several windows to which the blind therein is intended to apply, is contrary to the said Act, and we do hereby direct that such blind-box be forthwith taken down and removed."

EXTERNAL INCLOSURES.

In the matter of an information from the district surveyor of St. George, Hanover-square, relative to a certain inclosure standing upon the lead flat in the rear of a house in Oxford-street, on and above the level of the one pair floor,—the referees awarded in July last, that the same was an extension of the main building, and inasmuch as it was not "built of sound bricks, or of stone, or of such bricks and stone together, laid in and with mortar or cement," and

of the thickness, &c., required by the Act, must be altered and amended.

This amendment was made by the substitution of bars and plates of iron, for timber quarters and boards. The referees having made a second survey, on the application of the surveyor, have since certified "that such external inclosure has not been made, by such alteration, conformable with the provisions of the said first-mentioned Act."

MATERIALS OF EXTERNAL WALLS.

Mr. Stevens having erected certain buildings of wood in the parish of St. Matthew, Bethnal-green, an information was laid against him by the district surveyor.

When before the referees, Mr. Stevens stated that the buildings in question were for the purpose of a contract to be terminated at Midsummer next, and that he was in treaty for the lease of the ground, upon obtaining which he intended to erect buildings in accordance with the Act.

The referees determined,—"that the buildings in question not being insulated buildings, and being built of wood, are contrary to the said Act, but inasmuch as no other building stands within fifty feet of the said buildings, and having reference to the circumstances stated by the said John Stevens, we defer to make any direction in the matter until the expiration of nine months from the date hereof, unless any building be erected or be begun to be built within thirty feet from the said buildings, within the herein mentioned period of time, in which case we hereby direct that the buildings hereby declared to be contrary to the Metropolitan Buildings Act, be taken down and removed."

NEWLEAFE DISCOURSES ON THE FINE ART ARCHITECTURE.

AN ATTEMPT TO TALK RATIONALLY ON THE SUBJECT.

On the first appearance in our columns of the papers headed "The Young Architects of England, by one of themselves," we received more angry letters respecting them, than have fallen to our lot during the whole of our connection with the public. It is not certain that we did not positively lose subscribers in consequence,—the threats of departure were numerous,—but this in no degree swayed us. We have more dominant motives of action than even the desire to increase the sale of The Builder, and believing conscientiously that these papers, notwithstanding some faults of style, and occasional error of judgment, displayed great ability, and were calculated to effect much good, we did not refrain from publishing them.

For reasons already stated in our pages, the author of them, Mr. Kerr, has been led to place his views before the public in a more complete form, under the title at the head of this notice, and on the same ground on which we printed his first letters, we recommend the work for perusal and careful consideration.

Instead of the letter form in which the first remarks appeared, the author has adopted that of dialogue, by means of which much that would be otherwise obscure is explained and elucidated. The parties to it are thus introduced:—

"Of the very respectable Mr. Heavyith'heel, Fellow of the Institute of British Architects, it is not necessary that I should say one word in addition to the simple mention of his name.

Mr. Newleafe is a gentleman perhaps less known. Being of retired habits and somewhat thoughtful in disposition, it happens that his views on many subjects are considered peculiar.

These gentlemen having met frequently (as I am told) at the residence of my friend the very excellent and learned Dr. Verditurus the librarian, their conversation would turn to the subject of architecture. And here it was soon manifest that their opinions were widely different; Mr. Heavyith'heel claiming that his views were the generally received doctrine. Wherefore it was proposed that a few evenings should be specially devoted to the systematic exposition by Mr. Newleafe of his views."

Mr. Heavyith'heel, it should be said, and indeed it is acknowledged, by no means fully represents the argument on his side of the question.

One great purpose of the writer is to shew to what a small extent architecture as *a fine art* is understood and practised, and to destroy the dominion of precedent.

The following extracts will elucidate this:—

"While, then, I condemn the Authority-system—the All-mannerism—the Rule and regulation doctrine—of our age, in Architecture, (and it happens to be one of the most backward of the Fine Arts with us,) yet I must not foolishly assail the very principles of human nature by censuring the fact Fashion. Were I to expect Mannerism to be overthrown I should but put myself among the ranks of those correctors of fate, whose Harmony Halls and Little Bentleys and Nauvoos are standard jokes for the world. Fashion will rule, must rule: and thus far, manner—regulation—*style*—is a natural human phenomenon.

But this is not at all what I complain of: it is the confounding of mere manner with the fundamental principles of propriety and The Beautiful—your doctrines of the Rules of Art by *models*—infallibles—orthodox sovereigns to rule Design—your putting imagination into leading strings from the Past, orders, styles, precedent, authority—this is what I bear so great a grudge against. I demand a WHY for all your rules and precepts; and somehow (it is perhaps my misfortune) I cannot see a sufficient reason in the mere fact that the "ancients" or the "great masters" did thus and so. If you choose to be a machine wound up by Greek or Goth or Tudor or Italian, am I therefore to be such a machine likewise? I claim *equality* with your authorities as *a man*, to think for myself and to decide against them utterly and fearlessly if I see fit; and if you deny my plea, I ought to claim *superiority* to them as *an older man;* I live in an older world.

Architecture *has laws;* but they are not such as those. They are the abstract laws of Nature and Reason; not the *dicta* of Antiquarians or the Rules of Batty Langleys. The remains of Antiquity are properly subjects for our *criticism* not our *imitation*. Judge them by the laws of Nature and Reason—the laws of Architecture and every thing else, and inquire whether they fulfil their requirements; if they do (and frequently they most eminently do), it is pleasurable to see it; take courage and follow them (their principles of Art—their spirit, not their manner): and if they do not (and frequently they do not), then, whatever be their antiquity, whoever their authors, whatever the associations wrapt around them, they are *bad;* profit by their failure to avoid like errors."

In his desire, however, elsewhere, to change the system and destroy "copyism," Mr. Kerr falls foul of much that is valuable. The history of architecture is the history of progress, and the advances of succeeding nations have been commenced where their predecessors left off.

He is anxious to see Vitruvius put on one side:—

"Now, what is likely to be the next move? For that is, after all, the great end of Philosophy.

We began with the book—the mere dogma: then we cast aside the book for the model—the remains,—we determined to *examine* for ourselves: the next step—will it be to cast aside both book and model, dogma and "remains," and determine to *think* for ourselves—*design* for ourselves? Let me say we are in the transition from Vitruvius to Truth: we have forsaken faith for fact; the natural next step would be to leave fact for Reason. I am glad to think it may be so; it seems to be the tendency. We hear more said of the *principles* followed in the "authorities:" the next step is to discover that true principles are independent of the "authorities;" and then we may hear of Nature and Reason instead of Precedent, and find Art superseding Copyism."

"I shall remark this in conclusion, that there is perhaps no other Fine Art in which so much depends immediately on *study* as in Architecture. The *spirit* at which the Musician (Composer) labours—the *effect* at which the Sculptor or the Painter labours—even that which the poet elaborates in his work—is perhaps less a thing of study, than the Design which the work of the Architect might shew. Not as at present done—not in the "running up of a front," but in a true work of the Fine Art Architecture. Deeply acquired skill—in a thousand ways—careful design—down to the minutest feature—ought to appear. Else the work is a botch—a slovenly mess, unworthy of the name of real Art."

Against one great error in the book, the endeavour to disconnect architecture and construction, we cannot caution our readers too carefully. Architecture is not *appearance* merely, as the Newleafe discourses set forth, but the art and science of building according to certain rules and laws. As this is a matter of considerable moment, we shall return to it when we have more leisure and greater space at disposal.

EXPOSITION OF THE RULES FOR CALCULATING EQUILIBRATED ARCHES IN THE LINE OF A RAILWAY,

SUGGESTED BY THE NUMEROUS INSTANCES OF FAILURE WHICH HAVE LATELY BEEN RECORDED IN THE PAGES OF THE PUBLIC JOURNALS.

In our last number, page 508, we showed in what manner to calculate the modulus of the curve for the particular case proposed; it therefore only now remains to show the method of finding the several ordinates corresponding to the assumed values of the amplitudes; and for that purpose,—

Put m = the modulus of the curve, as represented by equation (A).
n = the value of the series $2 + \frac{1}{1} + \frac{1}{1\cdot2} + \frac{1}{1\cdot2\cdot3} + \frac{1}{1\cdot2\cdot3\cdot4}$ + &c. = 2·718282;
p = the parameter or thickness at the crown of the arch, which is also the least ordinate,
x = any abscissa or amplitude, estimated on the horizontal axis, and
y = the ordinate corresponding to any value of x.

Then, by the principles of the differential calculus, the general equation which expresses the nature of the curve of equilibration, is found to be $y = \frac{p}{2}\left(n^{\frac{x}{m}} + n^{-\frac{x}{m}}\right)$, and when this equation is expressed in specific terms it becomes

$$ordinate = \frac{parameter}{2} \times \left\{ 2{\cdot}718282^{\frac{amp.}{mod.}} + 2{\cdot}718282^{-\frac{amp.}{mod.}} \right\} \quad .. \text{ (B)}$$

In this equation the parameter and the modulus are constant for any particular case, the parameter being always one of the data, and the modulus being calculated from equation (A) and its rule after the manner already exemplified.

If the value of the modulus as expressed in equation (A), were substituted instead of it in equation (B), it would manifestly render the equation for the ordinate very complicated, and particularly so, as it enters in the character of an exponent; it has, therefore, been thought better to separate the modulus from the general formula, and to express its value by an independent equation, for by viewing it in this separate and detached manner, the subject is rendered comparatively simple.—The rule supplied by the above formula, when expressed in words at length, is as follows:—

RULE.—Raise or involve the constant quantity 2·718282, to such a power as is denoted by the fractional exponent $\frac{x}{m}$, or *amplitude* ÷ *modulus;* then multiply the sum of that power of the constant quantity and its reciprocal by half the parameter, and the product will be the ordinate corresponding to any assumed value of the amplitude.

The rule, as it is here expressed, is as simple as can well be desired; but since the exponent is a fractional quantity, having its numerator variable, it cannot be practised otherwise than by logarithms; this, however, creates no difficulty, for since it is only common logarithms that enter the operation, they are found at once from a table of these numbers; and, by taking the amplitude at equal intervals, the results are deduced from each other with the greatest facility.

The common logarithm of the number 2·718282, is 0·4342945; and since this is constant for every case of the equilibrated arch with a horizontal extrados, the rule becomes greatly simplified, and may be expressed as follows.

RULE.—Multiply the constant log. 0·4342945 by the amplitude or abscissa, and divide by

the modulus of the curve, the quotient will be the logarithm of a number, which being added to its reciprocal, and the sum multiplied by half the parameter, the product will be the ordinate corresponding to the assumed value of the amplitude.

Taking for illustration the second of the preceding examples, let it be proposed to determine the ordinate corresponding to an amplitude of 18 feet, the modulus being 10·57654 feet, as calculated in the example here alluded to.

Here, then, by the rule we have $0{\cdot}4342954 \times \frac{18}{10{\cdot}57654} = 0{\cdot}7391170$, which is the logarithm of 5·48425, and the reciprocal of this, is $\frac{1}{5{\cdot}48425} = 0{\cdot}18234$; therefore, by adding and multiplying by half the parameter, we get $(5{\cdot}48425 + 0{\cdot}18224) \times \frac{5}{2} = 14{\cdot}16547$ feet for the ordinate sought.

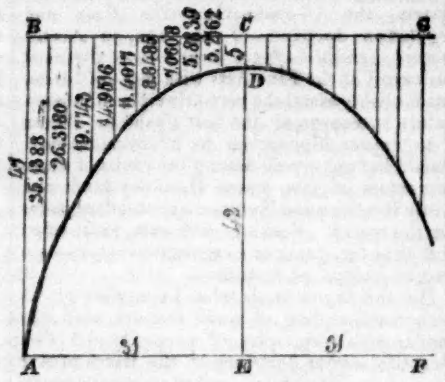
Having thus exemplified the method of calculating an individual ordinate, it now remains for us to shew how the process is to be modified in calculating a series of ordinates for the construction of an arch.

Retaining still the same example, let the semi-span be supposed to be divided into ten intervals of 3·1 feet each, beginning at a point in the horizontal roadway directly over the crown of the arch; then the several amplitudes for which the ordinates have to be calculated, estimated in order from the middle of the arch, are 3·1; 6·2; 9·3; 12·4; 15·5; 18·6; 21·7; 24·8; 27·9, and 31 feet, the ordinate corresponding to the last of these being 47 feet, as we have seen already in calculating the modulus.

Now each of the required ordinates may be calculated independently, after the manner exhibited above, by taking the amplitude corresponding to any required ordinate; but by the application of a certain expedient, the work can be greatly simplified, as the several logarithms and their arithmetical complements can be deduced from each other by the application of a common difference; and this common difference is equal to the constant quantity 0·4342945, multiplied by the common interval 3·1, and divided by the modulus 10·57654; it is therefore in the present case equal to $0{\cdot}4342945 \times 3{\cdot}1 \div 10{\cdot}57654 = {\cdot}1272924$; to this common difference add the logarithm of half the parameter, and the sum will be the first logarithm in the series; then, by adding the common difference as often as there are ordinates to be found, the whole series will thus be obtained. If the numbers corresponding to each of these logarithms and their respective arithmetical complements be added together, the sums will be the values of the corresponding ordinates. All this, however, will be more clearly perceived by the following tabular exhibition.

Common difference to be added. 0·1272924.	Common difference to be added, 9·8727076.	Numbers from the first column.	Numbers from the second column.	Sums from the third and fourth columns.
0·5252324	0·2706476	3·3514	1·8048	5·2162
0·6525248	0·1433552	4·4928	1·3911	5·8839
0·7798172	0·0160628	6·0231	1·0377	7·0608
0·9071096	9·8887704	8·0744	0·7741	8·8485
1·0344020	9·7614780	10·8243	0·5774	11·4017
1·1616944	9·6341856	14·5109	0·4307	14·9516
1·2889868	9·5068932	19·4330	0·3213	19·7743
1·4162792	9·3796008	26·0783	0·2397	26·3180
1·5435716	9·2523084	34·9600	0·1788	35·1388

Having thus determined the several ordinates of the semi-arch, according to the assumed values of the amplitudes, it now remains to be shown in what manner they are to be applied in the actual delineation of the curve; and for this purpose, draw the straight line, AF, in any direction at pleasure to represent the span of the arch, which make equal to 62 feet, agreeably to the data. Bisect AF in E, and at the point of bisection erect the perpendicular EC, making it equal to 47 feet, which is the given vertical distance between the impost and the roadway, and through the point C draw the straight line BG, equal and parallel to AF, the span of the arch; then is BG the horizontal estrados. On BG, both ways from C, set off the several amplitudes 3·1; 6·2; 9·3, &c., according to the series, and through the several points at which these amplitudes terminate draw vertical lines originating in the roadway or estrados, BG, and set off on these lines the values in the last



column of the preceding table, beginning with 5 feet, the given thickness at the crown on the central line CE; then through the several points where these ordinates terminate, let a curve line be traced, and it will form the arch of equilibration required, or such as will just sustain itself without the re-action of other contiguous arches.

This, therefore, is the method which ought to be adopted in the construction of all railway arches having horizontal extrados; for in all such erections, unless it be in passing through towns or other crowded localities, the appearance of the arch is of no consequence, and ought to have no influence whatever in fixing the choice of form, in comparison to the paramount object of obtaining stability and strength.

The example which we have chosen is rather an extreme one, the rise being considerably greater than half the span; this case has been adopted on purpose, to shew the effect which such unusual proportions have on the appearance of the arch; but even in this extreme case, there is nothing in the configuration that might not be tolerated in constructions where ornament itself is an object of importance. T.

NOTES IN THE PROVINCES.

A new and spacious custom-house is to be erected at Southampton. A site adjoining the docks has been selected by the commissioners. To this, the inhabitants of Holy Rhood Ward have objected, as detrimental to all property at the lower end of the town. ——It is proposed to erect court houses at Dorchester on premises near the jail, at an estimated expense of 12,000*l.* reduced to 9,000*l.*, by value of materials and sale of interest in present property, estimated at 3,000*l.*——The Wesleyans are said to be erecting a school on a magnificent scale, near Taunton.——A donation of 1,000*l.* has been given by Lady Basett towards the rebuilding of the old parish church of Illogan, Cornwall, which was to be reopened at the end of the present month. ——A sum of no less than 100,000*l.* has been expended, it is said, by Lord Ward on the rebuilding and enlarging of the Level Furnaces at Brierley Hill, South Staffordshire. A railway, with locomotive engines, has been formed for the conveyance of coal and iron stone from his lordship's pits at Park Colliery to the furnaces, a length of two miles. The opening of these works will give employment to a vast number of hands at the furnaces and collieries. ——Rapid changes are in progress at Ipswich in connection with the railway, amongst which are what will constitute when finished "a continuous and splendid line of quayage and tramway from Bridge-street round to the gas dock." Houses are being razed also, for the substitution of a new street at the bottom of Friars-street; new steam-mills of white brick are in course of erection, and other works, such as walls, tram-ways, roads, &c., are in simultaneous progress. ——A beneficent but humbly-minded gentleman who will not permit his name to be announced, proposes to appropriate 10,000*l.* towards the erection of a church in Leeds with parsonage and school endowment, &c., which it is thought will cost about 20,000*l.* in all.——The Hull General Cemetery Company are advertising for tenders for works connected with their undertaking. The drains are nearly completed and other works are to be immediately commenced.——A corps of surveyors is now engaged in the trigonometrical survey on Ben Nevis in Scotland, where, according to the *Edinburgh Register*, they have a theodolite constructed by Ramsden, 3 feet in diameter, with eight microscopes, reading to tenths of seconds, and by which, with the aid of sun mirrors on distant mountain tops, it is expected that observations may be taken at a distance of 120 to 150 miles; indeed it is confidently anticipated, that Knocklayde, in Ireland, will be thus observed from Ben Nevis. So correct and elaborate is this ordnance survey, it is said, that in Ireland, where it has been completed, no new survey has been required for railway lines.——The cathedral at Glasgow was lately visited by Lord Morpeth, as Chief Commissioner of the Woods and Forests, who inspected the improvements now in progress there, and also considered the further improvements proposed by the architect, Mr. Blore.——A new water-company has been formed at Dumfermline with a capital of 10,000*l.*, for the supply of the town with abundance of pure water, the quantity at present provided being scarcely one-tenth of the quantity reported by the Parliamentary Commissioners on the Sanatory Condition of Large Towns, as being in general necessary, apart altogether from what should be provided for cleansing streets, scouring drains, extinguishing fires, &c.——A very efficient improvement Bill, to be applied for, is said to be in course of preparation at Aberdeen. Amongst the leading points to be kept in view, a local paper enumerates perfect drainage, regular cleansing of all squares, streets, lanes, closes and courts, an ample supply of water, stringent regulations as to scavenger work, powers for even enforcing some degree of internal cleanliness in dwellings, thorough ventilation, by new thoroughfares, proper width of streets, and plans and alterations of houses, mercantile facilities, exterior adornment, &c., and it is intended to place the gas, provision markets, sewers and their produce, abbatoir and cattle market, along with water, under the management of a public board.——The Irish Board of Works lately issued advertisements, calling for contracts to be sent in by the 30th instant, for supplying some 60,000 or 70,000 wheelbarrows, immense quantities of clay-picks, quarry-picks, and other implements for road labour. The mere manufacture of these articles will no doubt give immense employment; but the importance of the advertisement is in the assumption that the implements are to be supplied gratuitously to the labourers, and that they are to be instructed in a higher class of work than mere digging and shovelling. The Board of Works has now 20,000 men employed.

FREEMASONS OF THE CHURCH.

At a meeting held on the 13th inst., Miss M. Mackenzie, of Winchester, presented a fine specimen of the Acanthus plant, and promised to furnish the college in the proper season, with such flowers and foliage as is known to have been used in architectural decoration.

The Earl of Harrington exhibited five Raphael dishes, rich in design and colour.

Mr. J. W. Archer, exhibited a monumental brass which he had designed and executed. It contained the effigy of a lady standing in meditation at a cross. It was an attempt to effect two original objects, viz., in the first place, the design is produced in relief upon a sunken ground, which saves the necessity for the metal being cut according to the shape of the figures represented upon it; and again, the ordinary method of cutting in stone an exact type of the brass for the purpose of inlaying it, is likewise spared, whereby the monument is preserved entirely in one piece and a considerable moderation of expense is obtained. In the second place, the alloy of tin being extracted from that portion of the metal which constitutes the sunken ground, the effect of two different metals—brass upon copper is produced. The above method of obtaining the effect of relief in metal, is capable of being carried out with great boldness, and the design can be raised upon a depth of half an inch or more if desirable.

Mr. William Cave Thomas then delivered an introductory lecture on "Fresco Painting," which treated of the philosophy of the art and of painting in general.

PENITENTIARIES IN ANCIENT CHURCHES.

Sir—As considerable attention has lately been bestowed upon the subject of confessionals, and more particularly with respect to that class brought under notice in the volume containing the curious collection of letters relating to the suppression of monasteries, published by the Camden Society, page 49, I venture to intrude on your space with a few remarks, which are not put forward in open contradiction of what has been already advanced, but with deference to other opinions, and the authority by which they are maintained.

Having myself given some attention to this interesting inquiry, I shall perhaps be excused for not readily assenting to the notions generally prevalent on the subject, and more especially to the supposition that the "low-side window" in the chancels of many of our parish churches, is to be regarded as the place for the hearing of "*outward* confession."

Bedyll's recommendation, that the said place should be *walled up, and that use be fordoen for ever*, was made with respect to the church of a religious community, served by friars, to which the public was, by privilege, admitted, and to which resort was more frequent at certain seasons or great festivals, but it is not to be supposed that the same regulation pertained to churches exclusively parochial.

In the early Christian churches, a portion at the *west end* was expressly set apart for penitents, and it is reasonable to suppose that a similar arrangement should occasionally, be retained in the structures of more recent times, and that existing examples would not be sought in vain.

It is singular that, although the feature is not of unfrequent occurrence, it is one which has never yet been considered in reference to this question. I allude to the chamber occasionally found at the west end of ancient churches, which appears to me to bear more directly upon the subject under review than do the arguments referred to.

To illustrate my views, I will notice an example still remaining at Walpole St. Andrews, in Norfolk, which, from the first, I have regarded as a penitentiary of the kind described. It occupies the space between the door of the tower at the west end, and the angle-buttress towards the south, the thickness of which was reduced in the original construction of the building, in order to gain the required width; the remainder forms the side wall, and is pierced with a small window of two compartments, sufficiently large to enable a person to look into the gloomy interior, which, being quite external to the church, was admirably suited for the reception of penitents. The interior, which measures 4 feet 9 inches square, is partly formed in the thickness of the wall of the tower, from the face of which the projection is full three feet and a half, with a doorway in front; but this having been walled up, the recess is inaccessible. Its only internal ornament is a canopied niche, of handsome design on the east side.

In the church at Lower Halling, Kent, is a small apartment, which is walled off from the west end of the north aisle, with which it communicates by an ancient door-way. It is lighted by a diminutive Edwardian window, quite low down in the north wall. There is a bracket on the western side, but the wall adjoining is of very irregular work, and has been rebuilt, so as to obliterate the ancient design.

An example at Boyton, in Wiltshire, bears a close resemblance to the one just named; and in this, as in almost every other instance, its situation is contiguous to the principal entrance, which, at Boyton, is on the north side, by a spacious porch, forming the basement of the tower. The little room referred to occupies the angle formed by the porch and the western extremity of the nave, and has low walls, with a steep pent roof. Two very small apertures, one on each side, afforded light to the interior; but these have been closely walled up.

At the west end of the south aisle of Burwell Church, Cambridgeshire, is an appendage of very similar character: it was anciently approached from the aisle, but has evidently been long abused and neglected, the original entrance being blocked up. It is lighted by narrow oop-windows on the west and south aspects, which latter has been defaced by the recent formation of a common door, inserted upon its perversion to the use of an engine-house.

These illustrations of such an arrangement were well adapted for the purpose to which they are here assigned, the penitents remaining in the porch until they could gain access to the confessor, who attended in the adjacent penitentiary.

In churches of more grand dimensions and stately architecture, these places occupy the same position at the west end, sometimes forming a magnificent portico extending the full breadth of the buildings, but capable of being parted off, and entirely inclosed by means of doors; and instances might be adduced in which these side portions have rooms over the one designed for the especial purpose referred to, having the approach to the upper chamber within the penitent's porch, the other, probably intended for the use of the sacrist, having its door opening to the aisle. Not, however, on the present occasion to dwell upon the nobler examples, I will observe in respect of those attached to churches of less pretension, that an inclosed and covered space was provided for the sacred tribunal, while on the other hand, the majority of writers seem to regard "*outward* confession" as signifying *out-door* confession!

Although many may doubt the accuracy of the belief that such places as these, far removed from the chancel, were referred to by the visitors of religious houses under Henry VIII., not so many will be found to deny its *likelihood*, especially of those who are most deeply versed in the practices and ordinances of antiquity.

Such ridiculous ideas have gained circulation with respect to confessionals, that it is scarcely safe to incur the risk of adding to the number, but I could not withold the submission of the foregoing remarks to the consideration of your antiquarian readers.—Yours, &c.,

B.

THE NEW COLLEGE IN CANTERBURY.

A hasty run through the ancient city of Canterbury last week, enabled us to see that the new college, on the site of the Monastery of St. Augustine, to which we have already referred on several occasions, is making progress; in fact, it will be finished to a certain extent by Easter. Mr. Hope, it will be remembered, purchased the site for the purpose, and is, we believe, the chief if not sole promoter of the undertaking. Adjoining the ancient gate (a beautiful specimen of ancient art), four small houses have been removed to obtain a frontage for the chapel, the exterior of which is partly of flint work, partly random walling, with Caen stone dressings. A long range of dormitories, at least 250 feet in length, is nearly completed. It presents externally an unbroken line of flint walling and tiled roof, with a series of windows at equal distances, without much pretence to architectural effect. A library of considerable size is going up, the materials of which are Kentish rag and Caen stone. The restoration of the old gateway is not yet commenced. The manner in which the new buildings are connected with it, is not altogether satisfactory in appearance at present. A trefoil panel, on the top of the coping of the former, is too large and coarse for the details of the gateway, and these suffer in consequence. There appears to be no master builder engaged: the committee employ their own men, and have at this time eighty-two engaged there. Mr. Butterfield is the architect.

If we have a reader who has not seen Canterbury, we advise him to seek an early opportunity to pay it a visit. It belongs to History, and is full of interest. Don't omit to see St. Martin's Church on the Hill, and the old hospital in the town. The cathedral will afford you much delight and many a lesson. By the way, it is to be hoped that careful drawings have been made of the south porch and other parts of the exterior, and that no long time will be suffered to elapse before the restoration of the former, at all events, be attempted: its present state is greatly to be deplored.

Carved Pulpit.—The proprietors of the wood-carving patent have just completed a pulpit for the City Board of Works, intended for the chapel of Emanuel Hospital.

IMPROVEMENT OF THE PARKS.

Sir,—Through your valuable journal I wish to submit to the consideration of the Viscount Morpeth a few alterations, which would contribute to the benefit of the public in Hyde-park.

1. I would suggest that two alcoves, open all round, except the roof, be placed midway between Oxford-street Gate and the head of the Serpentine, for the purpose of protecting the passengers in stormy weather, and securing their persons from aggression, by permitting the stationing of a policeman between sunset and nightfall. To make the spot more conspicuous, a gas-light should be affixed there. If the alcoves would be an impediment for the troops on field-days, they might easily be removed by placing them on low trucks of wheels.

2. To continue the railing of the lake of Kensington-gardens to the bridge; which would conduce to the safety of passengers during the winter or foggy season.

3. To lay down a stone or brick crossing, on that part of the road between Kensington-garden lodge and the field part of the park.

4. A spacious shade should be erected at the solitary tree that stands in the road used by horsemen, for shelter there in stormy weather.

5. That a watering-place would be highly desirable, if erected at the gable-end of the cavalry officers' stables, for the accommodation of equestrians and others.

6. That the iron hand-balustrade, which has been removed from the stone steps near the Duke of York's Column, be affixed in the centre, so as to divide the steps. This hand-rail would be a great accommodation to invalids and members of the clubs adjoining; also to members of Parliament proceeding to the House of Commons. It would also serve to divide the crowd who assemble in St. James's-park on a gaiety, enabling them to ascend on one side and descend by the other. It is not unfrequent for individuals to lose their equilibrium.

Should the Viscount Morpeth be pleased to consider favourably the foregoing propositions, either as a whole or a part, his lordship would thereby confer a great boon on the public, but more particularly on those who are obliged to cross the park daily. An Observer.

THE IONIC ORDER USED AT THE TAYLOR INSTITUTE, OXFORD.

THE TEMPLE OF APOLLO EPICURIUS, NEAR PHIGALIA.

In accordance with our pledge last week,* we have engraved the details of the order employed at the Taylor Institute, together with the other parts, on a scale so large as to shew clearly all their peculiarities. The form of capital, and the decoration of the entablature, will in particular excite observation. Our engravings shew the eastern angle of the building, with one of the detached columns on the St. Giles's front. The height of the column is 27 feet 8 inches, and the diameter appears to be 3 feet 3 inches.

The Temple of Apollo Epicurius, at Bassæ, was unknown till Mr. Cockerell, in conjunction with the profound Haller, explored it. In consequence of their visit, it was excavated in 1812, and the dimensions found to be 125 feet by 47 feet. Externally it was of the Doric order, having six columns in the front and fifteen on the sides; 3 feet 7 inches in diameter, and 19 feet 6 inches high.

Around the interior of the cella was a series of attached columns of the order Mr. Cockerell has adopted at the Taylor Institute, over which, on the four sides of the cella, ranged a sculptured frieze.† This was sent to England, and was purchased for the British Museum at the cost of 15,000*l*.

The roof was of marble. Mr. Donaldson, who has ably illustrated this temple in the supplemental volume to "Stuart's Athens," expresses his opinion that the date of the interior of the temple may be less remote than that of the exterior, as the Ionic capitals in question are less severe than would be found in the age of Pericles, to which the latter unquestionably belongs.‡

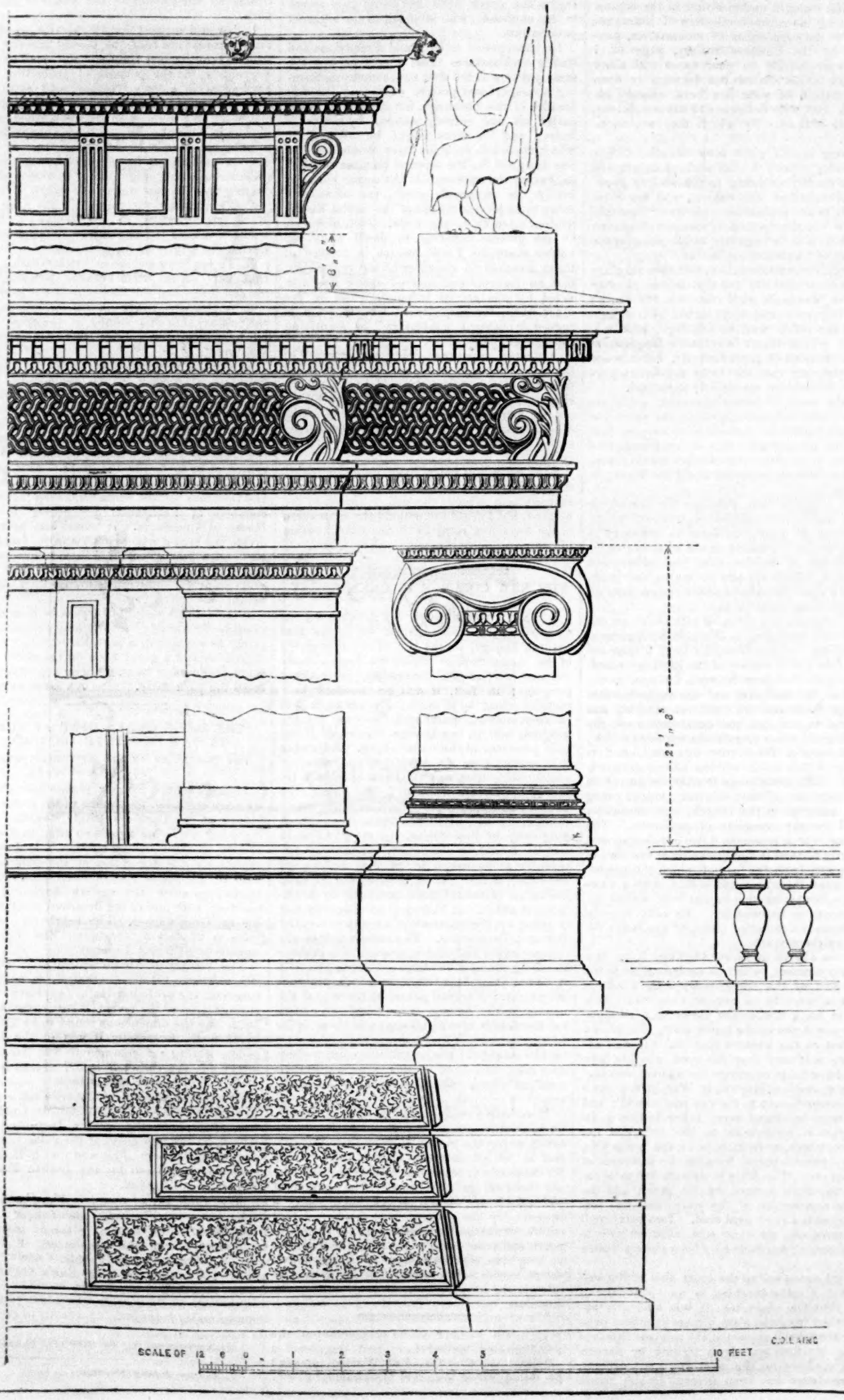
* See page 505, *ante*.

† There was also one insulated column of the Corinthian order, the occurrence of which has given rise to much discussion.

‡ In the Greek example the columns are fluted.

UNIVERSITY GALLERIES AND TAYLOR INSTITUTE, OXFORD.

DETAILS OF FRONT.



ANCIENT IRONWORK AT MALINES.

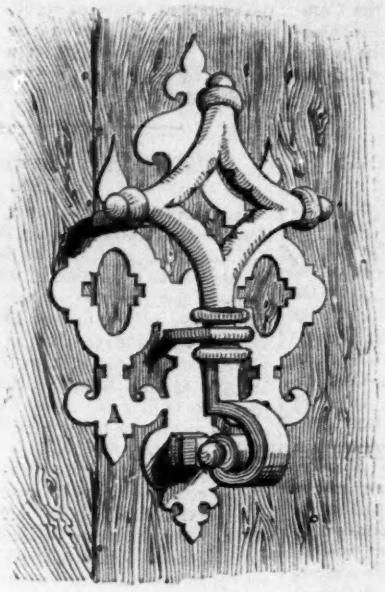


Fig. 1.

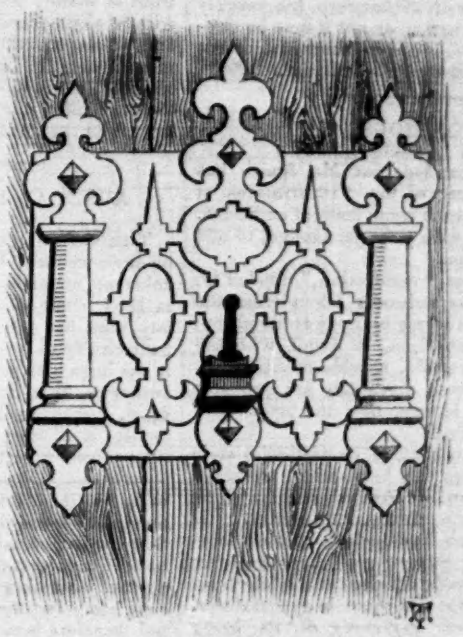


Fig. 2.

Fig. 3.

Apollo Epicurius,* may be classed amongst the most important architectural antiquities of Greece "from the ascertained era of its design, the character of its style of art, the beauty of its ornaments, and the extent of its preservation." Phigalia, near the site of which it occurs, was situated at the south-western angle of the province of Arcadia, and was built (according to Pausanias) by Phygalus, son of Lycaon, and grandson of Pelasgus.

Ictinus was the architect of the Temple; he died 429 years B.C.

We cannot find room for more than the following, from amongst the remarks on the building with which correspondents have favoured us. It is necessary to remember, that, to criticise a building fairly, it should itself be seen.

Sir,—The elevation of the Taylor Institute, given in your last number, makes evident how highly requisite it is that architects themselves should put forth authentic designs of their own buildings for our information as to what they really are. Professor Cockerell's had certainly been strangely misrepresented in many respects; yet, though it turns out very much better than the idea conveyed of it by other "portraits," there is a good deal that is exceptionable in it. To say nothing of the portico, which is exceedingly meagre as to intercolumniation, and should either have been hexastyle, or carried up higher, by the order being enlarged and made equal to the extreme height of the wings,—the plan shews one extraordinary fault in composition, the flanks of the wings, towards the front court, presenting elevations from which a compartment (that to the north of the centre one with attached columns) has been cut off by inserting the middle building between the wings after the latter had been erected. At any rate, such is the appearance, and the defect is a perfectly gratuitous one, there being nothing whatever to hinder those elevations being quite symmetrical. Possibly, the architect had what was to himself a very sufficient reason for such a singular anomaly in design; therefore, many others besides myself would, doubtless, be very glad to know what it is. I hope you will not withhold from us a section, or rather sections, of the building; or if you have them not to give, at any rate let us have some more full and explicit description of the whole interior. At present, it is puzzling to make out from the plan how the ground-floor of the centre gallery is lighted, nor is that the only mysterious part. Budownik.

* The name of Epicurius (Driver away of Evil), was applied to Apollo, for having driven from the Athenians a pestilential disease.

ANCIENT IRON-WORK AT MALINES.

The old town of Malines, or Mechlin, so interesting to the painter for the "Crucifixion," by Vandyck, the "Miraculous Draught of Fishes," and many other fine pictures by Rubens, is as much so to the architect for its cathedral, churches, and old picturesque houses, with their high-pitched roofs and quaint gables, to which we have already adverted on more than one occasion.

Many of these houses were erected by the Spaniards, when they had possession of the country in the 16th century, and are peculiar in character; we illustrated one of them a few weeks ago.* We now give some examples of iron-work from the same place. Figures 1 and 2, from drawings by Mr. Truefitt, represent the knocker and lock of an old Spanish house; they display considerable fancy.

Fig. 3 shews the gates to the court-yard of another house in the town, apparently of earlier date.

A strong iron railing of excellent character

* See p. 450, *ante*.

surrounds the market place, and the immense, but light clock face still retains its position on the lofty tower of the cathedral.

Relative to ancient ironwork we are informed that the well known beautiful inclosure of the cathedral well, at Antwerp, has entirely disappeared! Whether or not it may be elsewhere preserved safely, our informant is not aware; we hope this may be the case.

HOUGHTON HOUSE, BEDS.

Sir,—I am gratified that Mr. Smith has made extensive use of my "Illustrations of Bedfordshire,"* with some tasteful additions. I should be glad, with your permission, to add some brief remarks.

The "print," or "restoration," alluded to, in that work, was not only taken from the "elevations," lent to me by Lord Holland, but from careful comparison, in detail, with the ruins, by Mr. Stratfold, an able draughtsman at Woburn. These elevations are probably still at Ampthill House, now the property of the Duke of Bedford.

I am bold to say that, of its particular style and age, this was the handsomest domestic edifice in England. Audley-End, a little later, perhaps the next, but inferior. Of Wilton I have no knowledge; whilst Penshurst, the other Sidney residence, however romantic, is perfectly different in architectural unity, and Hatfield not equal in gracefulness. Besides the moral evidences of its being Inigo Jones's, there was no known architect in that spring of Italian architecture capable of producing so much elegance.

A principal feature was seen in the corner towers,—spire-roofed, exactly like those of old Montague House, now disappearing; but much more lofty, shapely, and slender. The columns are nearly as fresh as at Whitehall.

The dismantling caused some surprise at the time, as it was the birth-place of the late excellent Duke of Bedford, who, besides much liberality of disposition, had some tenderness of local feeling. There were probably reasons not apparent. As a "ruin," it is the "great" (or rather only) "card" of the county, but not so well known as might be to strangers; and in itself what Dr. Johnson would have considered worthy a visit from London. Some of the removed materials were used in the erection of the Swan Inn, Bedford, one of the handsomest county ones in England.

It is not certain that the whole or part of the celebrated "Arcadia" was not written here; but probability is on the side of Penshurst.

I am glad Mr. Smith has no objection to my "discovery" of the *Carita* convent resemblance.

Of the Countess of Pembroke's works, the best account is found, where it might be least expected, in Baker's "Biographia Dramatica." There is a copy of the "Tragedie of Antonie" in the British Museum. It is partly "lyrical," and has some poetical lines, combined with quaintness. The following quatrain is not inaffective:—

> "But no one thing the gods can less abide
> In deeds of men than arrogance and pride,
> And still the proud, which too much takes in hand,
> Shall foulest fall where best he thinks to stand."

Few need be told of a noble descendant of the Countess's in the north.

The writer hopes to be pardoned for a concluding observation.—Whilst a "History of Bedfordshire" has been desired for about half a century,—with the exception of some little "guides" to the county town, since the labours of *Lysons* and the kind-hearted surviving patriarch (though not senile) *Britton*,—he has been the only one who has done any thing towards it. Having, besides the above work, and some articles in the honoured columns of "Sylvanus Urban," twice written a "History of Woburn," &c., and its neighbourhood discursively,—these circumstances might be expected to cause sympathy, and a wish for kind service, under some particular

> "Slings and arrows of outrageous fortune."

—wrapped in great mishaps in life, as known to some of your readers.—I am, Sir, &c.

J. D. Parry.

London, Oct. 17, 1846.

* A thin 4to; pp. 120, six plates; 1827.

ST. JOHN'S GATE, CLERKENWELL.

We are glad to learn, that considerable progress is being made in the restoration of this interesting relic of ancient London; the north front is mainly finished, and the south front will be commenced next week. Lord Northampton has recently subscribed *5l.*, the Common Council of London, 10*l.*, and the Archæological Institute, *2l.* 2*s.* Much credit is due to Mr. Griffith for the energy with which he has urged the claims of the structure.*

AUSTRIAN DRAWING SCHOOLS.

The idea of generally educating the *people*, on the continent, belongs to Austria, and was achieved under Maria Theresa and Joseph II. in 1784, since which time no improvement of any kind has been added thereto. But we have chiefly to speak of *drawing schools*. As it has been now put forth here from the highest authority, that *every child* ought to learn to draw, it may be interesting to know, that this facility is afforded them in Austria. In every little township or large village, is, at least, one, what is called Normal school (*Normal Schule*), in larger towns one in each district. It takes the child—boy—from the very *primer*, and in three or four years, if talents and application be adequate, gives him the whole complex of a plain education for the general purposes of civic life. In the fourth year of the course, and therefore between the age of ten to fifteen, he learns to draw; and how fond are children at this age of drawing! In every Normal school is one spacious room set apart for drawing purposes, whose walls are ornamented with framed and glazed sketches of the architectural order, scrolls and mouldings, and Acantha and finials; the human body, flowers and landscape, elevations of buildings, ground plans of buildings, as well as estates and parks, &c. Whether the child who frequents this *state establishment* (all schools are so in Austria) be destined merely for the humbler walks of life, or for the legal, medical, or clerical profession, he cannot avoid to see these things constantly before his eyes; and if he feels the inclination, this tuition also is afforded at a mere nominal price (about 6d. per *month*), the poor to go free. For the future barrister, therefore, drawing is *not* compulsory; still, most children are fond of it, and acquire it as a matter of amusement. But for many other branches it is compulsory; for all, namely, who wish, subsequently, to frequent the Real schools or polytechnic schools (*Real Schulen*, &c.). Not to speak of architects, engineers, &c., there is hardly a reputable smith or carpenter who has not his son thus instructed. He can do it, as we said, in every large village at a nominal cost.

The next question is, where such a number of drawing masters as are required are to come from? *Create any demand, and you have created the supply!* These teachers are poured forth from the art academies of Milan, Vienna, Prague, &c.—and, as even every provincial town has its *structural* authorities (*Bau-behörde*), there are plenty of minor clerks and draughtsmen, who fill up both situations. Prizes, in the shape of books, &c., are awarded in all Austrian schools and gymnasia, and, therefore, also in those for drawing. The next in the system of *technical* education, are the *Real Schulen*, which exist in every chief town of the empire. There architecture, engineering, surveying, the rudiments of natural history, book-keeping—and, of course, the higher branches of technical drawing are taught. These schools form the minor *employés* in the roads and bridges *public* departments, in that of land and hydraulic buildings, the mines and the railway branches; they, besides, afford corresponding instruction for the manufacturers and tradesmen. All these technical establishments are headed by the polytechnic institutions—at Vienna, Prague, Gratz, &c., the latter an astounding work, undertaken by the exertions of Prince John of Austria, and the grants of the legislative chambers of Styria.—The art-branch in fine, into these normal drawing schools expand, are the academies of fine arts, of which there is also one in each of the provincial capitals. The *system* seems good: it takes up the peasant boy in his native village, and thence it leads him, step by step, to the higher and highest branches of either technical drawing or art. If this main system of 1784 should ever receive its time-adapted development, superior results and men would spring up. Still, even the spreading of an average instruction in an art, ennobling and useful like that of drawing, is not to be under-rated. J. L.

* Mr. Griffith advertises a new work, under the title, "Ancient Gothic Churches, their proportions and chromatics." According to the prospectus, the main object of the work is "to lay before the public a geometrical analysis of gothic churches, laid down from actual admeasurement."

WESTMINSTER COMMISSION OF SEWERS.

A meeting of the court was held on the 23rd inst., Captain Bague, R.N. in the chair, "To consider, and, if it be deemed expedient, to rescind the resolution of the court on the 7th August last, on the subject of the actions Donaldson *v.* Smith, and Donaldson *v.* Bird; and to determine whether, in the event of Mr. Smith moving for a new trial in the action brought against him, this court will not move for a new trial in the action Donaldson *v.* Bird."

The following letter from Mr. Garrard, Mr. Bird's solicitor, was read:—

"Being informed that it is not the intention of the commissioners to move for a new trial, in the cause in which the verdict passed against them, I beg to state officially for their information, that I am authorized to adopt the same course in the cause in which the verdict passed against my client. This will obviate any discussion at the special court on Friday next."

On which it was resolved that no further steps be taken by the court.

The surveyor brought up a report on the breaches in Brook-street, in Grosvenor-square, and in North Audley-street; and as to the general state of the drainage in the neighbourhood of Grosvenor-square.

In accordance with the report, on the motion of Mr. Gunter, it was resolved that 4,000 feet of sewer, from the King's Scholars' Pond Sewer, along Brook-street, north side of Grosvenor-square, from South Audley-street along the west side of Grosvenor-square, and North Audley-street to North-row, Duke-street, Brown-street, and George-street be constructed.

In the course of the discussion on this subject, the singular fact was stated, that when "Dame Grosvenor," in 1726, obtained leave to build the sewer for 102 acres of land, part of which is now about to be displaced, the sum of 204*l.* was paid by her to the court for the permission.

On the application of Mr. Edward Blore, leave was granted "to construct a 2 feet 9-inch barrel brain, in connection with the existing drains of Buckingham Palace, for the purpose of relieving three drains from a superfluity of water, and conveying such superfluity directly into the pond in St. James's-park."

TRAPS FOR HOUSE DRAINS.

Sir,—In a recent number, page 463, you shew a proposed new formation of drain and trap, in the arrangement of which I think some important results have been entirely overlooked, and that the trap, therefore, will not, I fear, succeed in the only two circumstances for which a trap is required, viz.: to keep out vermin and smell. As to vermin, the fact is well known that rats will dive under water where the line of obstruction is, as in this instance, sloping, so as to give them foothold or an expectation of rising above the water on the other side; on this account not only should the check be abrupt, like the dipstone of the common cesspool, but that stone should dip more than it is usually made to do: I make mine to dip from 4 to 6 inches. But a no less important consideration is, that by this trap all house drains will be what is called *double trapped;* and as every rush of water along them, will infallibly drive out of the drains the larger portion of the air which that body of water displaces (assuming the remaining portion to be compressed), and as, after the water has run off, or rather, as, in order to permit it to run off, its place must be again supplied by air, to come from some quarter, the inevitable consequence will be, that the water will thus be sucked out of some, or all, of the upper traps, which will then cease to keep out the smell—

and so the very object sought to be gained will be most assuredly defeated. This consequence is well known to plumbers, when two water-closets run into the same soil-pipe—or even with only one, if the soil-pipe be trapped at the bottom as it is in the best work; to prevent which good workmen put into the top of the soil pipe an air-pipe expressly to give that which your trap so labours to keep out. But your trap, even without this evil, would not keep smell out of the house, from the alternate egress and regress of water, causing, as I have shewn, constant currents of air, which in a drain from water-closets and sinks must be foul. The smell, if there be any vent for it into the house, must be equally offensive as if entirely open to the sewer, as is well known in the case of a defective soil-pipe, even if trapped at both ends. The real way to keep out all smell from drains, assuming them of the common description, is to build them very sound, with good bricks, good mortar, every joint well flushed with mortar, the bottom half included, which is too often laid dry, and the bottom half cemented on the inside, and the top half on the outside, sufficiently below ground to have a good covering of it, and a good fall; and all openings to be well trapped, and all soil and other pipes well let in with P traps or tafts, built solid in brickwork; one of these latter are always put by me, though usually neglected, and thus the most usual cause of smell. The top of the drain, and the trap to be brick or stone, or equal (not wood, as formerly). The trap to be little, or no larger, than the drain, and to have half circular bottom from inlet to outlet. This is my plan, and I have never known such drains to fail of their object when the outlet or sewer has been of due depth. From these observations it will of course appear, I am not an advocate for leaving the joints of the drain open, that it may draw off the moisture from the foundations. This ought to be prevented or got rid of by other means. Still, keeping the drains below the foundations of the walls will have a beneficial effect, and where practicable it should be done. From the difficulty of securing lead (a soft and malleable substance) to brickwork, so as to make a good joint, and from the injury lead-soil pipes often receive from rough usage in the basement story, I usually make the lower lengths of my soil-pipes of cast iron, half an inch larger in bore than the upper lead pipe, and with a quarter bend tafted pipe, or iron P trap, at bottom, the joint between lead and iron being carefully made by flanges.—I am, Sir, &c.

AN OLD SUBSCRIBER.

There is one other plan to which I have not before referred, because I assumed it would be at variance with the very principle of the new drain; it is to let the rain-water pipes run into the drains, and thus form air pipes; but then the joints must not be loose and unconnected, or the smell will escape at these, and pervade the areas, and get in at the windows, equally as if the drain-stones in those parts, were the common five or nine hole sink-stones instead of air-traps. I allude to this only to shew it has not been overlooked by me.

CONTINUED STIR IN THE SCHOOL OF DESIGN

LONG ago, the opinion of THE BUILDER was pronounced against the inefficiency of the School of Design, as at present in operation at Somerset House. This opinion was corroborated by facts illustrating the effects of the system both in London and the provincial schools. Mr. Dyce, Mr. Herbert, Mr. Zephaniah Bell, and Mr. Wallis, all able officers, retire, or are dismissed. At the recent exhibition we noticed the absolute absence of *design*—the want of any signs that it was even taught in principle—and now we are not surprized to find that a deep conviction of the present erroneous arrangements of the School, has drawn forth memorials to the council from two of the head masters.

The three head masters of the evening school are now known to be strongly opposed to the system, which gives such meagre instruction to the pupil; a system which truly appears to be of little practical utility. The memorials, printed and otherwise, are before us, but as the council are still, we believe, in deliberation upon them, we refrain from quoting them at present.

RAILWAY JOTTINGS.

In the Wash, on the Ely and Peterborough line, hundreds of loads of timber have entirely disappeared, as if they had floated away under the surface, so that there is no prospect of the opening of this line at present.——The works on the Wymondham and Dereham railway will be completed in less than a month. The great gullet at Hardingham, one of the heaviest works of the sort in that quarter, is nearly completed, leaving quite a hill of marl thrown up on one side of it for about a mile in length. About 500 men have been employed during the summer in this excavation. All the bridges are in a forward state, though only three are finished. The arch of one, being too flat, fell down about a month ago. Very large culverts, or arched viaducts, have been constructed between the heavy embankments, and streams diverted through them. The stations are all in course of erection. Near Dereham the work in general is only begun.——The London and North Western newly amalgamated line have already not only instituted a very reduced scale of charges, both for goods and passengers, but increased their income, in 15 weeks, thereby, to the amount of 46,478*l.*, from which, to be sure, the additional working expenses must be deducted; but the result of the experiment is, as we have frequently anticipated in such circumstances, not only the conferring of a great benefit on the public, but the securing of a decided increase of profit to themselves. The company, it is said, have also determined to become their own carriers, whereby it is expected they will increase their profits still further, to the extent of at least 50,000*l.* to 60,000*l.* a year. So good an example will surely be now followed up by the like reduction of charges on other lines. A writer in the *Edinburgh Review* animadverts on the discouragement of third-class passengers on our English lines, giving the following proportions of railway passengers out of every hundred, in England and Belgium:—

	British.		Belgian.
1st Class passengers....	16¼	....	10
2nd Class ditto.....	43¼	....	30
3rd Class ditto.....	40	....	60
	100		100

The revenue on British lines, he adds, exhibits the same deficiency from third-class passengers as compared with foreign railways:—

	British. £ s.	Belgian. £.
1st Class (out of every 100*l.*)..	40 14 ..	20
2nd Class ditto.....	42 16 ..	33
3rd Class ditto.....	16 10 ..	47
	£100 0	£100

So that in England the passenger traffic is mainly drawn from first and second class passengers; in Belgium from second and third, but chiefly from third. The writer attributes this to four principal causes: first, high fares; second, carriages uncomfortable and unsafe; third, inconvenient hours; fourth, slow speed. ——The river Ouse, at Selby, is to be crossed by the electric telegraph from the Hull centre in rather a novel way, so as to allow the largest vessel trading there to pass below the wires without injury from their masts. Two large masts, nautically rigged with patent wire rigging, cross trees, caps, &c., are to be erected with top-masts, reaching a height of no less than 140 feet, from summit to summit of which 12 telegraphic wires will cross the river under the protection of suitable conductors for lightning. The whole apparatus has been made at Hull, under the superintendence of the contractor, Mr. J. Aughton; and the telegraph will be completed in two or three weeks from Hull to Milford Junction, which will place that port in communication with York, Scarborough, Newcastle, and the ports of Durham northward, and with Leeds on the west; and also in a few more weeks with Liverpool, westward, and Wakefield, Barnsley, Sheffield, Rotherham, Derby, and London, south; and with Birmingham and other south-western towns. The telegraph is also in course of erection on the Burlington line, and will be opened throughout in a month or two.——The bridge now in course of erection over the Wansbeck, on the Newcastle and Berwick line of railway will be 130 feet in height, or two feet higher than the high level bridge over the Tyne.——The secretary of the North British line, in a communication to the *Morning Herald*, on the subject of the damage lately done to a portion of the works by floods, incidentally states, that there are 158 bridges on this line, of which five were the number partially or wholly destroyed; the original cost of these being under 5,000*l.*

KENSINGTON WORKHOUSE COMPETITION.

SIR,—You have no occasion to make any further inquiries into the matter, the fact as stated in your paper of the 17th inst., being notoriously correct. When the selected plans were sent to the Poor Law Commissioners, they at once informed the guardians, that the cost of carrying them out instead of 9,000*l.*, would be nearer 18,000*l.*; they even shewed, if I remember rightly, that the brickwork alone would exceed the stipulated amount. An opportunity was given to the competitor to prove the truth of his own estimate, and this being out of the question, the plans were withdrawn. All this and something MORE, which would amuse Professor Hosking and those who are probing the *secret* history of competitions, has been already publicly stated in the parish. I send you my name. I am bound to say that the public and the profession are indebted to the guardians for the proper course they have pursued, and to you, for a uniform endeavour to promote fairness in competitions.

I am, Sir, &c.,

AN OLD VESTRYMAN.

*** We are always anxious to avoid personalities, and find no pleasure in giving pain; but it is not vulgar abuse that will deter us from the exposure of injurious customs or disingenuous dealings. The practice of submitting to committees plans, which cannot be carried out for much more than the stipulated sum, is a species of dishonesty so injurious, and of such constant occurrence, that examples of it which may reach us, whether in the high or the low, neighbour or foe, shall be unflinchingly exposed, without fear of consequences. We are quite able to defend ourselves, and offer a friendly caution to those who need it, not to mistake our usual good nature for want of teeth. So, also, will we give hearty praise to committees who, as in this case, shew a proper appreciation of the responsibility of their position, and refuse to commit injustice. To those competitors and others who have addressed us on the subject of the plans about to be carried out, we can only say, that as estimates, publicly advertised for, are about to be delivered for executing them, it would be wrong at this moment to insert their letters.

WINE CELLARS.

SIR,—I have had occasion, in search of a residence, to inspect a goodly number of recently built houses, and to my great surprise have found that the wine-cellars are generally placed so as to spoil any wine that may be deposited in them. Instead of being placed so as to insure a regular and somewhat warm temperature throughout the year, the coldest part of the houses seems to be set apart for wine. On expressing my objection to a builder, and a very intelligent one, he seemed quite astonished, having an opinion that the cellar was *a nice cool place*. Now any one who knows any thing about wines, knows that a temperature never below 55 degrees is essential to their preservation and improvement. The best vaults in the docks are those which preserve this temperature throughout the year. Some wines are dispatched to the East and West Indies for improvement under higher temperature, but carefully guarded against a lower than above stated. The knowledge of this fact may be useful to many of your readers, and will perhaps lead to a better arrangement generally of those useful portions of the houses now building. May I suggest, that, as the cellars are usually on the same floor as the kitchens, they should be placed so as to admit of a ready communication with the boiler of the kitchen-range, by means of a small pipe, so that by the circulation of hot water night and day, the needful temperature might not only be secured, but increased to any amount that might be desired for special wines. This advantage might be obtained at a very trifling cost, if the wine-cellar were contiguous to the kitchen range.

PROCEEDINGS AGAINST THE DISTRICT SURVEYOR OF LEWISHAM.

At the quarter sessions for west Kent, on the 20th instant, a complaint was preferred against Mr. C. R. Badger, the district surveyor of Lewisham, by a number of the inhabitants.

The complainants charged Mr. Badger, first, generally with an overbearing, litigious, and exorbitant line of conduct, and particularly with, first, a non-compliance with a certain section of the Act, which requires that he shall have an office in a central part of the district, where he or some person on his behalf shall attend daily from the hours of ten to four, such office to be approved by the justices in sessions, and that a book of returns of all works surveyed, and fees received, be kept at all times open to the inspection of the inhabitants of the district on payment of a fee of one shilling; 2nd, With having acted in the double capacity of an architect on his own account, and of a district surveyor in his public capacity; 3rd, With having demanded and wilfully received fees in cases where none could be legally demanded, and also with exacting higher fees than those prescribed; and 4th, With refusing on demand, to return certain fees decided by the official referees to have been received wrongfully.

Nine witnesses were examined in support of the complaints.

In defence, counsel urged that his client was the subject of undeserved persecution, and called Mr. Badger himself to disprove the various charges.

The justices retired at six o'clock, the case having occupied the whole day; and in about half an hour the chairman returned, and said that the decision of his brother magistrates was, that Mr. Badger had, on many occasions, violated the provisions of the Act of Parliament under which he was appointed, and that, as a punishment, they condemned him to pay 30*l*.

THE PROPOSED CITY IMPROVEMENTS.

The report of the Improvement Committee, read on Thursday week, and at once adopted, in the face of an amendment for time to consult the constituency, recommends that the vote of 20,000*l*. per annum, by the corporation, for some grand series of improvements in the city, —or rather, that a sum of 530,000*l*., to be obtained, partly at present, on the credit of that vote, —be applied in carrying out, in the first instance, as the most desirable, a line "commencing from Cannon-street (King William-street) to the south side of St. Paul's Churchyard, including the proposed widening of Queen-street, from the south side of St. Thomas Apostle to Upper Thames-street, as affording immediate relief to the present crowded state of the metropolis, and the expense of which is estimated by the clerk of the works at 530,000*l*., after deducting the value of the building frontages;" the cost to be discharged out of the corporation vote in 20 or 30 years; but the operations to be at present confined to the opening from Cannon-street to Queen-street, and from Queen-street from St. Thomas Apostle to Thames-street, for which an estimated sum of 250,000*l*., or thereby, would be requisite. The mover of the amendment, Mr. Norris, expressed his apprehension "that the plan would cost probably upwards of a million, and be nothing better than a deformity after all. The line," he observed, "would be interfered with, and the portion proposed to be at once carried out would be quite useless and absurd;" but what was most desirable, in the mean time, at all events, was a little time for consideration; even those who were to vote on the report, as observed by Mr. Prendergast, "had no opportunity of seeing or being informed of the merits of the plan recommended." Mr. R. L. Jones, in urging the immediate adoption of the report, on the ground therein stated, namely, that "in consequence of the standing orders of Parliament with respect to private bills having been materially altered, it is requisite that any plans for improvement of London should be agreed upon as soon as convenient; and that the lists of owners and occupiers of property required to be taken should be prepared by the end of the present month at latest," remarked, that "it might be expected, as was the case with the London Bridge improvements, complaints would pour in against any project of improvement; but that the committee had taken infinite pains to guard the public and the private interests, as far as was practicable, in a scale of extensive change." Objections already urged, however, are, that the proposed changes are not extensive enough; or at all events not commensurate, in general utility, with what such a sum of money ought to do, and might be, in various modes of outlay, made to do.—We may observe, that a petition for improvement in Great Tower-street, presented at the same time with the report, was referred to the Improvement Committee; and that Mr. Jones, in recommending the selection of the spot proposed for the beginning of the alterations, as most advisable for effecting a relief to all the crowded streets from Tower-hill to St. Paul's Churchyard, stated that "he was led to believe that the government, upon seeing the corporation proceeding in such a spirit, would go on with the projected improvements in the neighbourhood of the Tower."

Correspondence.

TRAFALGAR SQUARE.

Sir,—In passing across Trafalgar-square the other day, my attention was drawn to the basins; I noticed that the water found its way through in many places, and flooded the paving around. Pray, how is this caused? The presumption generally arrived at is, that they are badly constructed; and certainly, the jointings of the stone cannot have been properly treated, or the internal finishing must be defective. A lining of lead round the inside, and part of the bottom, would seem to be necessary.

In a public place of this kind, some attention ought to be given to the state of these basins and the surrounding pavement.

I would also beg to ask, if it is known what is intended to be placed upon the pedestal at the western corner of the square? The tardiness which prevails in the completion of this *national* work is any thing but satisfactory. As a mark of respect to her Majesty, I would suggest an equestrian bronze figure of her illustrious father, the late Duke of Kent. I believe, in the whole metropolis there is not a statue to this royal Duke; and, associated as his name is with Queen Victoria, it behoves us to pay some tribute to his memory.

I am Sir, &c. Aqua Pedestal.

Newington.

Miscellanea.

Improved Fastenings, Knockers, &c.—Mr. Cotterill, of Birmingham, has obtained a patent for numerous curious arrangements in respect of locks, bolts, knockers, &c., which may be worth inquiring into. His improvements in locks consist in introducing spiral springs for the purpose of acting on the bolts when released, and also arranging the other parts, so that the bolt will be withdrawn by means of pressure on a knob in the centre of the handle, which acts on a wedge, and thus displaces the bolt from the staple; in latch locks the internal part is so arranged, that by turning the handle in either direction, the latch is lifted up; it is also replaced again by means of a spiral spring. In his improvements in knockers and bells for hall doors, the knocker, instead of being placed outside, as at present, is fixed inside the door, and has a spindle projecting through to the outside; on this is placed a small wheel, with a handle for the purpose of driving it round; on the axis inside the door is placed a sort of ratchet wheel, with two or three teeth, which, as they revolve, raise the knocker, which falls by its own gravity, the continuation or rapidity depending on the number of teeth, and the rate at which the wheel may be driven. Door bells are also applied in a similar manner, at the back of the door.

Norfolk and Norwich Archæological Association.—On the 22nd inst., the fourth general meeting of this association was held in Norwich, the lord bishop of the diocese in the chair, when a large number of interesting objects of antiquity were exhibited, and several papers were read. In the course of the meeting reference was made to an ancient baptistry in Dereham Church, of which the ruins still remain at the west end of the church.

Matters for the Legislature.—Sir,—To your "Matter for the Attention of the Legislature in the Approaching Session," you should add the obliging of all manufacturers to consume their own smoke, and the alteration of the Metropolitan Buildings Act. With regard to the former, I think we may fairly expect that Government will bring forward a measure for that purpose, as Mr. Makinnon has several times dropped *his* bill on the understanding that the ministry, then in power, would bring forward a *comprehensive* measure of their own, which should include this useful object. If this is carried into effect, it is to be hoped that the "Act" will also oblige the river steamers to consume their own smoke, or to burn coke or Welsh coal as the locomotives are obliged to do; as this is, if possible, a greater nuisance than the smoke which is emitted from the chimneys of manufactories. With respect to the latter,—the alteration of the Metropolitan Buildings Act—it is to be hoped that we shall shortly have a new Act that will give general satisfaction, and serve as a model from which similar Acts might be framed for other large cities and towns, where the like supervision is as necessary as in the metropolis. Civis.

The Iron Trade in the Far West.—A visitor, in describing the extension of trade in the flourishing town of Cincinnati, says,—"The iron founderies here are numerous, and some of them immense establishments. The work turned out is as good as in the east, and almost as various in kinds. The steam printing power-press is one of the articles recently turned out, and the manufacture of locomotives has just been commenced. The framing of models for new work is already a large business, and every new invention from Europe or the east is aimed at with a skill and perseverance that is sure to master every difficulty in the way of invention or imitation. Every kind of iron handicraft is wrought, from the colossal wheel to the screw, and from a complete engine to the finest wire. The rolling mills deal with iron as a carpenter would with pine boards, or a cabinet maker with the furniture of a parlour. Iron, indeed, is made by machinery to assume all the shapes and forms which the wit of man can devise, and is now as easily worked as wood, and almost with the same expedition. The rapidity of reducing the melted ore to the finest wire will amaze all those who have not seen the process of reduction."—At Poland, on the Mahoning river, in Ohio, new and extensive works are now in operation for the preparation of pig-iron with raw bituminous coal, an object now for the first time successfully accomplished in an American furnace, by Messrs. Wilkeson, Wilkes, and Co. The iron made by them by this process is said to equal the best Scottish pig-iron. Two hundred men are employed at these works, which have been twelve months in construction.

Rage for Building in Paris.—It would seem incredible that the continuation of the building of the Palace of the president of the lower House, in Paris, has been *delayed* for want of timber for the roof. Such has been the quantity of oak used, be it in the sleepers of railways, be it otherwise, that the largest timber merchants are at a loss how to procure the necessary supplies — even from Belgium and Germany. Still the house of the president will be covered in in the course of this month. The architect has taken especial care to preserve the fine wood carvings, which adorned the saloons of the ground floor. They are now in the hands of *ornamentists* and decorators, who, after carefully cleaning them, will restore them to their original beauty.

The Nelson Monument in Trafalgar-square.—The death of Mr. Ternouth, the sculptor, to whom part of the decorations of this pedestal was intrusted, will cause fresh delay in the completion of this memorial, and force the works to drag their slow length along for many months yet to come. We have not heard of the appointment of a successor.

Burial in Towns.—With the view of obtaining immediate alteration in a system, seen to be pregnant with evil of great and increasing magnitude, a committee is in course of organization. We will forward to the proper quarter the names of any parties who may signify to us their willingness to be associated in it.

CASTLE STOLZENBERG ON THE RHINE, AND ITS FRESCOS.—This palace, interesting to every reader as the abode of the Queen during H. M.'s late Rhine-trip, has been of late adorned with some fine wall paintings. The chapel, as well as the whole castle (thoroughly restored by order of the King of Prussia), commands one of the finest picturesque views imaginable. From the platform two windows, which serve also for doors, lead to the smaller Knights'-hall (*Rittersaal*), whence, by a short interstice, we enter the large hall. This part of the castle is the most exquisite and ornamented, to which now the frescos have been added. The able artist, Mr. H. Stilke, thought that he would best accomplish his orders, by exhibiting to the beholder pleasing and instructive events of the middle ages. Thus, to the form of the vaulting, six pictures are adapted, each of great character and considerable brilliancy of colour. The first picture represents the virtue of faith (*Treue*), Hermanne, of Siebenichen, saving Emperor Frederic I. in battle, by dressing in his garment, and being slain instead of his master. The second allegory is *love*,—Queen Isabella of England being received by Emperor Frederic II. on the Rhine; the banks of the river are crowded by greeting multitudes. The next picture represents the Greek princess Irene being conducted on the Rhine by Philipp of Schwaben, surrounded by Walther von der Vogelweide and other minstrels of that period. It is, however, animadverted upon, that the artist has not represented in a *Prussian* palace one single scene of Prussian history.

HOLY RHOOD CHURCH COMPETITION.—Some competitors wish us to bear witness to the proper tone exhibited in the letter from the committee in Southampton, to the unsuccessful candidates; we gladly do so, the occasion being unfortunately rare.

NOTICES OF CONTRACTS, &c.

THE authorities of the Stamp Office having given us notice to discontinue the insertion of our list of contracts, &c., excepting as advertisements, we, in deference to their wishes, omit them for the present, but have taken steps to place the facts of the case properly before them, and, as we hope, remove their objections. In the meantime a list may be seen at our office.

TO CORRESPONDENTS.

"*T. P.*"—Write to Pontifex and Wood, Shoe Lane, City.

"*F. T.*"—The facts are too obvious to require publication.

"*Rev. W. S. W.*"—Any intelligent labouring man could form the gravel and gas tar floors from the description in our last two numbers.

"*Sanatory State of Buckingham Palace.*"—The jocular remarks of "B." will not weigh against the statement of the eminent medical authority, advisedly made, which appeared in our pages.

"*Martin.*"—"An octagon room with a four-centered arched ceiling may be made in character with a Doric portico and entrance."

"*Subscriber from the Beginning.*"—We cannot furnish valuations.

"*W. D.*"—We should advise him to apply to some of the principal leading decorators in London. Our occupations prevent us from personal interference.

Next week.—"Improvements (?) in Scarborough," "C. F.," "Philo Medicus."

Received.—"E. M.," "A Subscriber," "Friend to Self-improvement," "E. H." (Oxford-street), "Competitor," Gray's-Inn-road, "Competitor," (2) "Cavelto," "H. E.," "J. R. N.," "W. Styche."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

IMPORTANT TO ARCHITECTS, BUILDERS, AND CABINET MAKERS.

LEA'S PATENT DOUBLE-ACTION BOLT, combining Cheapness, Facility of Action, and Security; adapted for the Strongest Folding-doors as well as the most Elegant Chiffoneer.

Agent, E. PARKS, 140, Fleet-street.

Best Patent Cut Clasp.					
6d.	7d.	8d.	1s.	1s. 6d.	2s. 3d.
3d.	4d.	6d.	8d.	10d.	20d.

Best Patent Sash Line.					
4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	12s.
1	2	3	4	5	6

Every description of Ironmongery equally low.

TO GAS COMPANIES, FITTERS, AND CONSUMERS.

WM. DONALD and Co., Gas Meter Manufacturers, 35, Britannia-street, City-road, beg to inform the above that they are now manufacturing a Two-light Meter, long required by small consumers, and at a price which will insure their patronage, viz., 1*l.* 12*s.*

Warranted to register correctly.

WILSON'S PATENT VENTILATING SPIRAL CHIMNEY POT,

For the cure of smoky chimneys (manufactured by J. PORTER), is the ONLY article for the purpose which assists the draft of the chimney by an external propelling power. Upwards of fifty were fixed last winter on the chimneys of Buckingham Palace, and Windsor Castle, with great success.

This Chimney-pot is not only the best and most effectual ever invented for the purpose named, but stands unrivalled in its ornamental appearance.

The public may be supplied with the above useful article by any of the respectable ironmongers, or at the sole manufactory,

Southwark-bridge Iron Roofing Works.

PAVING, 2s. 9d. PER SQUARE YARD. Basements, Foot walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT OFFICE, 15, WHARF-ROAD, CITY-ROAD.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen at 27*s.* 6*d.* per ton.

COMMISSIONERS OF FINE ARTS' REPORT ON THE MEANS OF PREVENTING DAMP IN WALLS.

THE DIRECTORS of the SEYSSEL ASPHALTE COMPANY have much pleasure in recommending to the notice of Architects, Builders, and others, the application of the ASPHALTE of SEYSSEL as the only effectual means of preventing DAMP rising in WALLS.

J. FARRELL, Secretary.

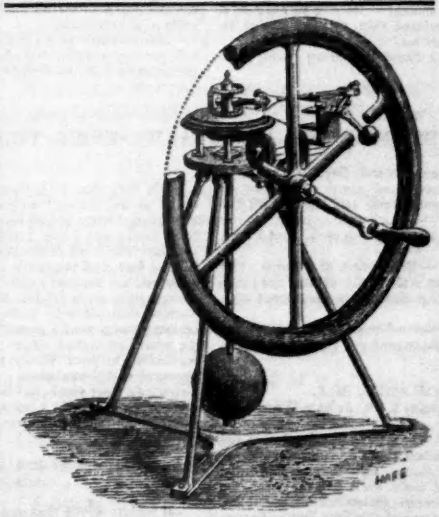
Seyssel Asphalte Company's Works,
"Claridge's Patent."
Stangate Depôt, London.

The following account of its application is extracted from "The Appendix to the Commissioners of Fine Arts' Report," page 16:—

"In 1839 I superintended the construction of a house of three stories on the Lac d'Enghien. The foundation of the house is constantly in water, about 19½ inches below the level of the ground floor. The entire horizontal surface of the external and internal walls was covered, at the level of the internal ground-floor, with a layer of SEYSSEL ASPHALTE, less than half an inch thick, over which coarse sand was spread.

"Since the above date no trace of damp has shewn itself round the walls of the lower story, which are for the most part painted in oil of a gray stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted, yet the pavement of the floor, resting on the soil itself, is only about 2½ inches above the external surface of the soil, and only 19½, at the utmost, above that of the sheet of water.

"The layer of Asphalte having been broken and removed, for the purpose of inserting the sills of two doors, spots indicating the presence of damp have been since remarked at the base of the door-posts."



THE CHRONOMETRIC GOVERNOR, invented by Messrs. SIEMENS, of Berlin, patented and supplied by JOSEPH WOODS and Co., Barge-yard-chambers, Bucklersbury, London, has now been in constant use, for regulating the supply of power for grinding corn, and moving machinery of other kinds, for a considerable time, and it is found to succeed perfectly in producing an instantaneous and automatic adjustment of the supply of power, without allowing any variation of speed; the result of which enables all manufacturers, dependent on regularity of the velocity for a maximum result, to attain a greater uniformity in, and increased quantity of, the manufactured article produced in a given time, without increasing the expenditure of power. This effect in grinding corn amounts to an increase of 10 per cent.

These instruments may be applied to existing steam-engines, water-wheels, &c., without interruption to their constant work, and at an expense very much below the value of the advantages obtained.

Testimonials may be seen, and every information obtained, at the office of the Patentees, and cards for admission to the numerous flour-mills, saw-mills, and other works in different parts of the country, where the Chronometric Governor is employed, on application to them.

PATENT STREET-SWEEPING MACHINE.

THE Public Authorities, having the charge and management of the cleansing of any town, are informed that a number of the PATENT SWEEPING MACHINES have been got ready, with the view of meeting, without any delay, the increased demand which may arise at this season of the year.—Application to be made to the Road and Street Cleansing Company, Charlton-street, Manchester.

TO ARCHITECTS, BUILDERS, AND THE PUBLIC IN GENERAL.

GEORGE JENNINGS, of 29, GREAT CHARLOTTE STREET, BLACKFRIARS ROAD, begs to call the attention of Architects, Builders, &c., to his REGISTERED FASTENING for SHOP SHUTTERS, &c., which entirely supersedes the use of shutter-bars. Thereby effecting a great saving of labour, as by the old method, the bar has to pass through the hands of some one upwards of six hundred times in twelve months, which tends to deface the whole front more or less every time the bar is put up or removed. The fastening is secret, simple, and sure, in its action, and can be affixed to any shop-front in two hours, without any alteration to the shutters. New fronts fitted at a less expense than a shutter-bar would amount to. A liberal allowance to the trade, and any further information may be obtained by inclosing a postage stamp to the above address.—A Model may be seen at the office of "The Builder."

SNOXELL'S PATENT SAFETY REVOLVING WOOD SHUTTERS,

Manufactory, 96, Regent-street, and 131, Chancery-lane.

THE Patentee can confidently recommend these Shutters for both security and durability. The edges being sheathed with IRON, and the cost little more than common shutters, their construction so simple, that the largest establishment can be opened or closed in a few moments with the greatest possible ease without the use of machinery. Their superiority over other Revolving Shutters consists in being made without metal hinges, consequently cannot rust, buckle, or get out of order, and are equally safe. W. SNOXELL will have much pleasure in giving reference to numerous establishments where they are fixed, having on all occasions given the greatest satisfaction.

LIGHTNING CONDUCTORS FOR BUILDINGS.

A. SMITH'S PATENT COPPER WIRE ROPE is being daily employed for the protection of CHURCHES and other buildings from the effects of thunder storms; it possesses important advantages over other forms of conductors. References can be given where it has been applied for some time past to CHURCHES, PUBLIC and PRIVATE BUILDINGS, &c., &c. Its general adoption in the Naval and Mercantile Marine of this and other countries is the strongest possible EVIDENCE of its EFFICIENCY, &c.

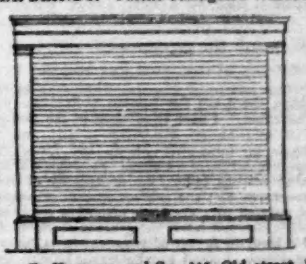
A. SMITH begs the attention of those engaged in building to his IMPROVED PATENT PANELLED AND REVOLVING IRON SHUTTERS,—Also, the Patent Weather-tight Fastening and Cill Bar, for French Casements, which are so much admired for their security, simplicity, cheapness, and efficiency. Of the merits of his Patent Double and Single Action Door Springs, Improved Flooring Cramps, Patent Wire Sash Lines, &c. &c., little need be said, as they are pretty generally known and appreciated.

Manufactory for Iron Suspension, Sliding, and other Doors, Strong Rooms, Plain and Ornamental Palisading, Gates, and Columns.—Also, Metal Sashes, Shop-fronts, Stall-board Plates, Brass butt, and other Hinges. Buildings heated upon a new, safe, and superior plan.

Estimates given for every description of Metal-work.

A. Smith, 69, Princes-street, Leicester-square, London.

IMPROVED PATENT CONVEX IRON REVOLVING SAFETY SHUTTERS.—Patent Panelled Iron Safety Shutters. PATENT OUTSIDE SHUTTER BLINDS.—Patent Corrugated Window Blinds.



The attention of Architects, Builders, and Blind Makers is requested to the IMPORTANT PATENTED IMPROVEMENTS in the above enumerated Articles, and inspection invited, at the Manufactory of the Patentees, R. HOWARD and Co., 115, Old-street, London.

The great importance of strength and stiffness in the Laths of REVOLVING IRON SHUTTERS, when required for security, is so obvious, that it is only necessary to point out the fact, that the Patent Convex Laths are twelve times stronger than the ordinary flat Laths (as shewn by the engravings and description), to insure their general adoption.

The Patentees invite attention to their greatly improved Gearing for Raising and Lowering their patent Shutters, which, possessing all the advantages of the endless screw (worm and wheel), cannot, even by wear, be liable to run down, and entirely avoids the necessity of using the ratchet wheel; it is at once simple and THOROUGHLY EFFECTIVE, and is SAFER and MORE DURABLE than any plan yet adopted for that purpose, thus rendering their patent Revolving Shutters the SAFEST and MOST EFFICIENT in use. These Shutters are fixed horizontally (either above or below the window or door), or vertically, for which position the great additional strength of the CONVEX Laths renders them peculiarly suitable.

REVOLVING IRON SHUTTERS, MADE OF THE COMMON FLAT LATHS, at a considerable reduction of price.

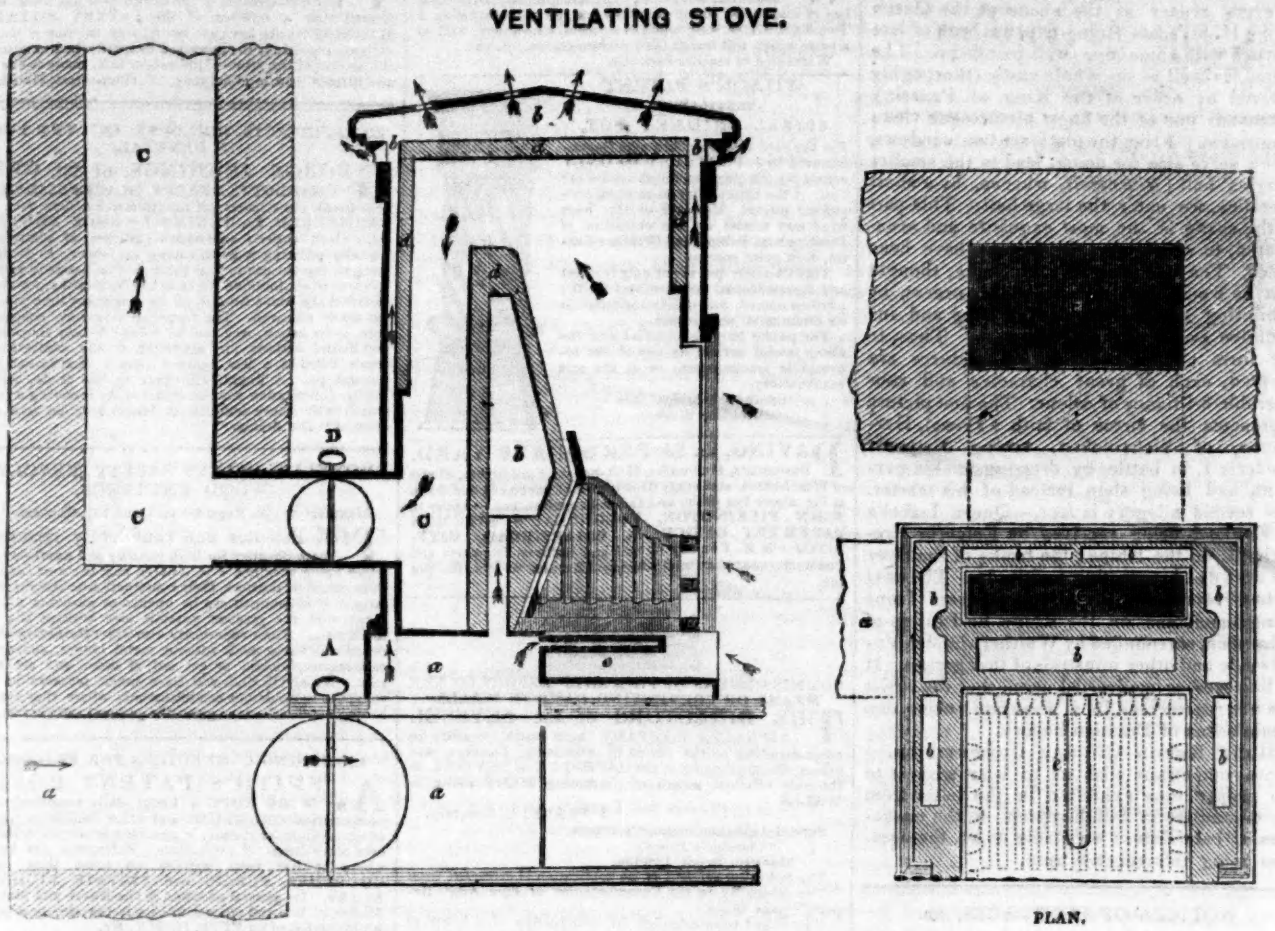
CAUTION.—The Patentees beg to caution all persons against Making or Using RENT or CONVEX LATHS for REVOLVING IRON SAFETY SHUTTERS (whether winding horizontally or vertically), so as to obtain increased strength and stiffness, as they thereby render themselves liable to legal proceedings for infringing this patent.

Engravings and Prospectuses will be forwarded on application.

DRAWN METALLIC SASH BARS, ASTRIGALS, MOULDINGS, STALL BOARD PLATES, &c.

Patentees and Manufacturers, R. HOWARD and Co., London.

CUNDY'S PATENT IMPROVED OPEN FIRE PLACE, HOT AIR, VENTILATING STOVE.



PLAN.

Description of Diagram.

a a a a Fresh air channel, for admission of external air.
b b b b Hot air chambers (formed with artificial stone, *d d d d*) through which the air passes into the room, and is heated without being injured.
C C C The direction the smoke and vitiated air takes after it has passed through the fire and heated the artificial stone of the hot air chambers.
e Blow pipe to preserve perfect combustion placed immediately underneath the grating of fire place.
A and D are regulators.
The arrows shew the way the external fresh air is admitted, next passing through the hot-air chambers into the room, and lastly taken out of the room through the fire and up the chimney—thus completing ventilation.

This STOVE embraces the following most important principles connected with the economy of

WARMING AND VENTILATING CHURCHES,

and other Public and Private Buildings, viz.:—

HEAT by RADIATION from the Open Fire.

HEAT by CONDUCTION.—A copious and continuous stream of PURE WARM AIR is conducted into the room through the large Stove, at a regulated rate, by means of an air channel underneath the floor, communicating with the external air.

HEAT by REFLECTION.—The external casing of the Stove becoming warm, communicates its heat to the surrounding atmosphere.

VENTILATION produced by the OPEN FIRE—which will carry off the Vitiated through the chimney at the same rate the Pure Air is conducted into the room through the interior HEATING APPARATUS of the Stove, thereby keeping up a regular and agreeable system of Ventilation.

ECONOMY of FUEL.—This Stove, from the peculiar construction of the Fire Place, will produce a most BRILLIANT FIRE with the least possible quantity of fuel, and will continue to burn so long as any particle of coal remains.

TESTIMONIALS AFTER A WINTER'S TRIAL.

Gothic Villa, St. John's Wood, Oct. 22, 1846.

SIR,—Perhaps there are few private individuals who have had more experience in stoves than I have had. I have tried most of the newly invented ones and rejected all but yours.

I tried two in my temporary church, and found them to succeed so well, that I have introduced them into All Saint's Church, St. John's Wood.

The following reasons induce me to approve of them:—Exemption of effluvia; the emission of pure warm air; the perfect system of ventilation; the sight of the fire; the consumption of vitiated air; the little attention requisite; the cleanliness connected with them; and though last, not least, the great economy of fuel.

All more I can say in favour of your stoves is, that whenever I require a stove, either for my house or church, I shall purchase your patent, and recommend my friends to do the same.

Yours truly,
(Signed, ED. THOMPSON, M.A.
Incumbent of All Saint's, St. John's Wood.

St. Thomas's, Charter-house.red

We, the undersigned, do hereby certify, that during the last three winters we sufferee severely from the cold in the Church of St. Thomas's, Charter-house, although we had thlit. large Arnott's Stoves, which consumed one sack and half of coals each day they were we The building was never warm; in consequence of which the congregation fell off, though s, had a zealous preacher in the Rev. Dr. James. We have now two of Cundy's Patent Stovea which consume but one cwt. of coal per day between them, and they impart to the church a comfortable heat and ventilation.

WILLIAM BUSHMAN, Verger,
THOMAS GEORGE, Beadle.

29, Charter-house-square, Monday, Feb. 17, 1846.

DEAR SIR,—The Stoves which you have recently erected in my church have been highly successful, and I have great pleasure in expressing to you the entire satisfaction which they have given to all parties. The church, which was notoriously noted for its coldness and bad ventilation, is now most agreeably warmed and well ventilated. I shall be most happy, on any occasion, to bear testimony to the excellency of your stoves; and I will endeavour, to the best of my power, to make them known, and I will certainly recommend them to my friends.

I remain, Dear Sir, yours faithfully,
JN. WM. ROGERS, St. Thomas's Charter-house.

St. John's, Fulham, 2nd May, 1846.

My Dear Sir,—I have very great pleasure in giving my testimony to the efficiency of your stove, as combining the double advantage of thoroughly warming and constantly ventilating any large church or building. Your invention appeared to me to be in theory all that could be desired; and I can honestly say, that I have not yet discovered the point in which the practice falls short of the theory.—The area of my church is computed to be nearly 300,000 cubical feet, and though a second stove will be required, the one already erected has fully answered my highest expectations, and realized all that you had given me to expect. If confirmation were needed for evidence of its efficiency, I might further state, that I had peculiar difficulties to contend with,—that various attempts had been made, and that every attempt had proved a signal failure,—that I was exposed to the charge of boldness in attempting what had baffled others; but that such is the power, the efficiency, and the comfort communicated by your Stove, that I know not of a dissentient voice, and have heard only of approval with unanimous consent.—I might add, that I was first led to the making inquiry respecting your stove, having gathered indirectly, that a disposition not unfavourable towards it was entertained in a certain high quarter, where, on account of ability of discernment, the smallest approach to approval must carry with it great weight.—I remain, Dear Sir, yours faithfully,
WILLIAM GARRATT, Minister of St. John's, Fulham.

Letter from the Rev. MATTHEW O'BRIEN, (Professor of Natural Philosophy and Astronomy), M.A., F.R.S., &c., King's College.

Upper Norwood, 22nd June, 1846.

I beg to certify that one of Mr. Cundy's Patent Stoves was put up in my lecture room at King's College, last year, in place of a common stove (of Arnott's construction, I believe). I have no hesitation in saying from actual experience, that Mr. Cundy's Stove is far superior both in producing warmth over the whole room, and in promoting ventilation, without disagreeable currents of air, or close smell.

MATTHEW O'BRIEN.

*** Since this stove was put up, four others have also been fixed, one of which is placed in the Medical Library.

Letter from Professor BRADLEY.

King's College, London, July, 1846.

Sir,—I am happy to be able to bear testimony to the efficiency of your stove, which is fixed in my lecture-room at this Institution. It seems to have all the essential requisites of a good stove, a rapid draught, freedom from all smoke, and from that smell which arises from iron, heated in contact with the air of a dwelling-room, which is entirely avoided by your arrangement.—I am, Sir, your obedient Servant,

THOMAS BRADLEY.

To be had of the Manufacturers,

MESSRS. DOWSON, 69, WELBECK-STREET, CAVENDISH-SQUARE,

Where they may be SEEN IN OPERATION, and where also may be seen an ELEGANT assortment of REGISTER and other STOVES, FENDERS, CULINARY APPARATUS, &c. &c. ARCHITECTS and BUILDERS supplied with IRON and BRASS CASTINGS, at Messrs. DOWSON'S FOUNDRY, 5, SEYMOUR-PLACE, BRYANSTON-SQUARE. Smith's Work, Gas Fittings, and all other works appertaining to a Smith and Founder, undertaken at estimated prices.